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ORIGINAL ARTICLES.

STATE AND LOCAL BOARD OF HEALTH.[1]

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The State is charged with no higher duty than that of protecting the health and lives of its citizens. Its wealth is not so much in its soil, its timber, and its minerals, as in the ability of its citizens to develop these sources of wealth.

The theory of our form of government, and in fact of every form of enlightened government, is that each citizen is required to yield up a portion of his personal rights, that the general good of all may be conserved. In return for this surrender of individual liberty, the State undertakes to make him secure in his person, and in the undisturbed possession of his property. This security of person and property implies the right to labor in his own chosen calling, undisturbed and unhindered by another, so long as his calling is legal, and does not trespass upon the rights of any other citizen. It secures to him and to his family the fruits of that labor, and protects him and them in their enjoyment. And it gives him that sense of security which can only arise from a belief that his neighbors will respect his rights as he respects theirs, or that the State will interfere to restrain and to protect. The poor man's health is his capital, and the wages of each day's labor is the interest that capital pays to its owner. It is as much the duty of the State to protect that capital, and make the owner secure in its possession and enjoyment, principal and interest, as it is to protect a railroad corporation in its franchises, or a lottery company in its schemes.

And so the laws of all just government hold a man responsible for an injury done another, that disables him from labor, to the extent of the injury done, through carelessness, negligence or malice. Ignorance of the law may sometimes mitigate an offence against personal rights, but it can never justify it. A man must exercise the same care to protect another from injury or loss, as a prudent man would take to protect himself under like circumstances. In most if not all the States, these general principles have been embodied into the statute laws, and constitute the guarantee of the commonwealth to the citizen, that it will protect his life, his family, his property and his personal rights. And so we have laws to secure the safety of persons, while traveling on railroads, steamboats and other public conveyances; to give them reasonable protection while stopping at hotels; while attending theatres, concerts, and other places of public gatherings; to protect the employés of large manufacturing establishments, and the occupants of tenement houses; and to prevent the unnecessary spread of diseases which endanger the health and lives of the citizens of the State.

The latter are known as the public health laws of the State; and under them, the man who either intentionally or carelessly, exposes his neighbor or his family, to disease which interrupts his business or employment, and subjects him to pecuniary loss, is equally a violator of the law, or should be made such, as he who inflicts loss from exposure to fire, from accident while travelling on railroads, or attending any place of public resort, or at work in any mill or factory, or while residing in any tenement house,

In Michigan, and many other States, to give effect to these laws, to see that they are properly enforced and observed, the State has created a State Board of Health, and a local board of health in each municipality in the State. The duties of the State Board, under the law, are supervisory and advisory. "They have the general supervision of the interests of the health and life of the citizens of the State." They are commanded to "study the vital statistics of the State, and to endeavor to make intelligent and profitable use of the collected records of deaths and sickness among the people, to make sanitary investigations and inquiries respecting the causes of diseases, and especially of epidemics; the causes of mortality, and the effects of localities, employments, ingesta, habits and circumstances on the health of the people. They shall, when required, or when they deem it best, advise officers of the government, or other State Boards, in regard to the location, drainage, water supply, disposal of excreta, heating and ventilation of any public institution or building."

They are required to communicate with other State Boards of Health, and with local boards of health within the State; and to prepare blank forms of returns, and such instructions as may be necessary, and forward them to the clerks of local boards of health throughout the State. They shall collect information concerning vital statistics, knowledge respecting diseases, and all useful information on the subject of hygiene, and through an annual report, or otherwise as the Board may direct, shall disseminate such information among the people.

[1] Read in the Section of State Medicine at the Thirty-Sixth Annual Meeting of the American Medical Association.

And the law further provides that the members of the Board shall receive no compensation for their services, except traveling and other necessary expenses while employed on the business of the Board. This is undoubtedly a wise provision, and I would most earnestly recommend its adoption in every State where the physicians are all rich, and the people all poor. The State furnishes office room for the use of the Board, and authorizes the employment of a sufficient number of clerks to do the large amount of work which comes into the office of the Secretary, and makes a reasonable appropriation of money each year to defray all necessary expenses of the Board. During the twelve years since the organization of the Board, they have prepared, printed and circulated among local boards of health, health officers and the people over 500,000 copies of monographs on different subjects relating to public health. They have collected records of sickness and deaths in different parts of the State, and given the results back to the people of the State. They have inquired into the causes of local epidemics and warned and advised communities. They have investigated special causes of sickness; such as poisonous cheese, diseased meats, poisonous wall paper, adulterated foods of various kinds and impure water. They have visited various places in the State where nuisances have been reported to them by aggrieved citizens, and advised as to the remedy in such cases.

They have visited, at the request of the State Board of Correction and Charities, poor-houses and jails in different counties in the State, called attention to their defects and suggested how they could be improved. They have visited the prisons and other State institutions, at the request of their officers and boards of control, to advise how their condition could be bettered. And their advice has uniformly been kindly and courteously received, and often acted upon to the improvement of such institutions. They have examined plans of public buildings about to be erected, and suggested alterations in methods of heating, ventilation, lighting, drainage, plumbing and safety in case of fire. And these suggestions have generally been thankfully accepted and acted upon by architects and builders. The result of these examinations of the plans of public buildings is, that not only the State has buildings better adapted to the purposes for which they are designed, but more attention is being paid to these details in building public halls, school houses, churches and private residences. And thus the comfort, safety, and health of the people of the State is being better secured.

In addition to these prescribed duties of the Board, they have endeavored to awaken a more general interest among the people in sanitary matters, by inaugurating and conducting a series of Sanitary Conventions in the principal cities and villages of the State. These conventions are held under the direction of the State Board, aided by a committee of the citizens in the locality where they are held. Persons interested in sanitary work in each place, and throughout the State, are invited to prepare and read papers upon, and participate in the discussion of such subjects as the particular locality is most interested in. Local papers advertise these conventions, and publish the programmes; in this way the people become interested, and the attendance is generally good. The papers read at these conventions, and a synopsis of the discussions elicited, are printed in pamphlet form and distributed gratuitously among the people. Local health officers in the vicinity quite generally attend these conventions, and take home with them an increased interest in their work. In this way the people are gradually being educated, health officers instructed, and local boards of health are each year becoming more and more efficient.

The State Board of Health is in direct and frequent communication with every city, village and township in the State, through their local boards of health and health officers. They act as a sort of central signal station to which signals of alarm and distress are sent from all parts of the State, and from which warning is sent to the endangered and advice and aid to the afflicted.[1]

The local boards of health are charged with the duty of administering and enforcing the laws relating to the public health. That they have been stimulated and stirred into activity, through the efforts of the State Board, is not to be questioned. And the benefits secured to the people of the State in this direction are perhaps greater and can be more readily appreciated, than in any other. Before the organization of the State Board, these local boards, existed scarcely more than in name. They rarely if ever met as a board, made no reports; and in fact, many township and village officers, never knew, that by virtue of the offices they held, they were members of a board of health. Now all this is changed; and we have in place of these inanimate bodies, live, active and working boards of health in most of our cities, villages and townships.

They are required by law "to make annual reports to the State Board;" and most of them through the local health physician, report weekly. They are required by law, "to appoint and to constantly have a health-officer, who should be a well-educated physician; and who shall act as the sanitary advisor, and executive officer of the Board." And in townships where it is not practicable to secure the services of a well-educated and suitable physician, the board may appoint the supervisor or some other person as such health officer. And they shall regulate and audit all fees and charges of persons employed by them in the execution of the health laws, and of their own regulations. And within thirty days after each annual meeting, the Board of Health shall meet for the transaction of business, and shall appoint or reappoint a health officer, and report his name to the State Board, together with his address and a statement whether he is a physician or not. Special meetings are held upon the call of the President or any two members of the Board. They shall make special reports to the State Board whenever required to do so. They shall give

[1] A recent law, requiring the study of physiology and hygiene with especial reference to the effect of alcoholic stimulants upon the human system, in all our common schools, provides that all text-books upon these subjects shall be submitted for approval to the joint action of the State Board of Health and the State Board of Education. In pursuance of this provision a large number of text-books have been examined, and some approved and some not approved.

public notice of all regulations made by them, and such notice shall be deemed legal notice to all persons. And the health officer, shall, on the receipt of information of a case of small-pox, diphtheria, scarlet fever or other communicable disease dangerous to public health, keep the President of his own board and Secretary of the State Board of Health, constantly informed in respect to such outbreak of disease, and of all the facts, so far as they shall come to his knowledge, respecting sources of danger from any such diseased person or infected article being brought into or taken out of his township, village or city. The local board shall make such regulations respecting nuisances, sources of filth, and causes of sickness within their respective municipalities as they shall judge necessary for the public health and safety. Whenever they shall think it necessary they may enter any building or vessel in their jurisdiction, for the purpose of examining into and destroying, removing or preventing any nuisance, source of filth or cause of sickness. They may make such rules and regulations in relation to the care and cleansing of privies and water-closets, as they may deem desirable for the preservation of the health of the inhabitants—or they may declare any such privy or water-closet a nuisance, and order its abatement.

When they shall judge it necessary, they shall assign certain places for the exercise of any trade or employment offensive to the inhabitants or dangerous to the public health; and forbid the exercise thereof in places not so assigned. Whenever a health officer shall receive reliable notice, or shall otherwise have good reason to believe, that there is within his township a case of small-pox, diphtheria, scarlet fever or other communicable disease dangerous to the public health, it shall be his duty to immediately investigate the subject, and to order the prompt and thorough isolation of those sick or infected with such disease, so long as there is danger of communicating it to other persons; and to see that no person suffers for the want of nurses or other necessaries because of isolation for the public good; to give public notice by placard, and to promptly notify teachers or superintendents of schools concerning families in which are contagious diseases; to supervise funerals of persons dead from any communicable disease; to disinfect clothing, rooms and premises, and all articles likely to be infected, before allowing their use by persons other than those in isolation. And this well-educated physician, health officer and sanitary advisor, shall receive for his services a sum of not less than two dollars *per diem*. This is another wise provision, particularly commended to the attention of other States. In justice to Michigan, however, I will state that this does not prevent local authorities from fixing the salary of the health officer at a larger sum.

Local boards of health, shall provide hospitals, or some suitable place for the reception and treatment of persons sick with infectious disease, dangerous to public health; and remove persons so infected when public safety demands; or they may consider the house in which the person is taken sick a hospital, as the condition of the patient and the public safety may seem to demand.

By this summary, it will be seen, that the law confers upon local boards of health ample authority, to make and enforce any regulations necessary to protect the citizens of their respective municipalities, against the spread of any communicable disease dangerous in its character; to limit it to the first cases infected, and in the end, to stamp it out. It provides penalties for the violation of any of their regulations or ordinances; and also for the non-performance of duties. These local boards, then are the administrators of all our public health laws; and to their intelligence, zeal and activity in enforcing these laws, must the people of Michigan look for security against the spread in their midst of all infectious diseases, and avoidable sources of disease, which endanger their health and lives, and entail suffering and pecuniary loss upon every community they smite.

Nor does the law relieve from responsibility the citizens of the State in regard to the means by which disease is communicated. It requires every householder, hotel-keeper, keeper of a boarding-house, and tenants, who shall have knowledge of the presence of any communicable disease, in his family, hotel, boarding-house, or on his premises, to give prompt notice of the fact, to the health officer, president or clerk of the board of health of his township, and if he shall neglect or refuse to immediately give such notice, he shall forfeit for each offence, a sum not exceeding one hundred dollars. And it is the duty of the supervisors and presidents of local boards to see that this provision of the law is complied with.

Thus the law in Michigan is very specific in defining the duties of both the State and local Boards of Health. It confers upon the State Board no executive authority, but makes it simply an educative and advisory Board in all matters relating to the public health; and leaves the enforcement of all our public health laws in the hands of the local boards of health. This has proved very satisfactory in that State, and is perhaps, under our form of government, the wisest and safest distribution of authority that can be made—leaving as it does, the enforcement of the public health laws, where it does the enforcement of all other laws for the protection of individuals and communities, in the hands of the local authorities. The State Board represents a larger constituency, and its advice is received and acted upon more readily, than that of any of the local boards. As the whole is greater than any of its parts, so are the utterances of the State Board, representing as they do the whole State, more authoritative than those of any local board. These local boards report to it; and it is the medium through which these reports are summarized and the information afforded by them given to the people.

In each State there are particular diseases and sources of danger, which threaten the public health. In the Southern States, yellow fever; in our sea-board cities and States, Asiatic cholera. In the Eastern and older States, typhoid, and typhus fevers; while in the Northern and Western States, scarlet fever and diphtheria are the particular scourges which afflict the people and demand the untiring vigilance

of both State and local boards of health. These, unlike most other contagious diseases, delight to strike down the young of our land, and on that account, seem the most unnatural of all the fatal dangers that threaten us. In Michigan, the State Board has made an unrelenting warfare upon them, and the people are beginning to demand of the local authorities, the same protection against their spread as they do in an outbreak of small-pox. They know that small-pox is contagious, and they keep away from it, and insist that the infected shall be kept away from them. Through the efforts and educational influence of the State Board, they are beginning to realize that scarlet fever and diphtheria are equally contagious, and much more dangerous to life; and they demand the same protection from them that they do from small-pox.

Three years ago, small-pox broke out in a lumber camp, but a few miles from where I reside. Nineteen persons had it, and one died. At the same time, and in an immediate neighborhood, scarlet fever made its appearance, with a total of twelve cases, and five deaths. The people of the country, for miles around, were excited and alarmed about the small-pox, but paid little or no attention to the scarlet fever. But a few weeks since, in the same neighborhood, diphtheria was introduced into a family of eight children, and while six of the children died, the disease was not allowed to spread beyond that family. Its presence was immediately reported to the local health officer and to the State Board of Health. The house was placarded, and quarantined, and every precaution taken to keep the disease within its original limits; and while mourning continues in that household, the community is saved from the further spread of that most fearful scourge.

Perhaps this incident in this particular community fairly represents the change in public sentiment throughout the State, in regard to the contagiousness of diphtheria and scarlet fever, and the means necessary to prevent their spread. This change is due to the better information of the people in regard to this class of diseases; and this information has been furnished the people through the agency and efforts of the State Board of Health. But the people are forgetful and neglectful, and need to be constantly reminded of the sources of danger which threaten their health and lives. "Line upon line and precept upon precept," is as necessary to promote public sanitation as it is to promote public and private morals.

Constant advice and warning are needed; and in no way can these be furnished the people so generally, so authoritatively, and effectively as through the medium of a well-organized and well-conducted State Board of Health. The obligation of the State to protect the health and lives of its citizens is plain. And in no way can it so well perform this duty, as by incurring the small outlay of money necessary for the maintenance and effective working of a State Board of Health.

ON THE RELATIONS BETWEEN CELLS AND MICRO-ORGANISMS.[1]

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The circular of our Secretary, requesting contributions from the members, brought this body of workers into my consciousness, and mindful of the liberality of its constitution and of the earnestness of its purposes I decided to offer the following study at this meeting. My subject is not in direct connection with sanitary science, but inasmuch as it treats of vital questions which underlie our progress in medical science of the present times, I trust it will claim your attention.

The greatest step forward that was ever taken at one time in medical science was by Rudolph Virchow in the years 1855–1858, when he finished his classical work on "Cellular Pathology." It is not saying too much to claim that on the recognition of the cell theory and its application to pathology is built the entire structure of modern medicine, surgery and hygiene. Recognizing the immense benefit which has accrued to mankind from this doctrine, I propose now to inquire into the facts upon which it is based and to ask in which way further progress may be expected.

1. "*A cell is a living body consisting of two bladders, the one within the other of different chemical constitution.*" Virchow.

2. "*Omnis cellula e cellula.*" Virchow.

3. "*All living things correspond in the one point, that they originate from a cell.*" Virchow.

4. "*The cell is the simplest form of life-manifestation.*" Virchow.

5. "*Life is confined to a definite form, the cell.*" Virchow.

6. "*Without a cell there is no life.*" Virchow.

The above six sentences are quoted from Virchow's "Gesammelte Abhandlungen zur Wissenschaftlichen Medicin," pag. 22, Frankfurt-on-Main, 1856.

The commanding influence of Virchow on modern pathological and biological research has so far controlled the opinions and thoughts of European scientists, of whom at least four-fifths are his own disciples, that the above theses have entirely entered into the bone and sinew of the students of natural sciences. Until very recently they have gone unchallenged, except by a very few, and the objections have as yet made little or no impression, as can be seen by a glance at the first pages of any text book of pathological anatomy or biology published during the past ten years.

In a paper purporting to treat of cells, it is proper that we should define this term. If we cannot define the term, it loses its usefulness. The definitions given by Virchow above are insufficient, since we know innumerable instances of living solitary organisms that do not fulfil the postulates. For instance,

[1] Prepared for the American Public Health Association, Dec., 1885.

a micrococcus is certainly a living being, but it is no bladder, nor has anybody ever seen a bladder-shaped substance within it. I chose this instance at this place, because *I expect to prove that the group of micro-organisms, which we call schizomycetes, cannot be classed under the head of what any author up to this day has ever defined to be a cell.* When Virchow says that: "Without a cell there is no life" he *defines* nothing; the statement is of about as much value as if he had said, *Without protoplasm there is no life, or without albumen there is no life.* Such statements are purely hypothetical; they are illogical, because they involve unknown quantities *i. e.* cell, protoplasm, albumen, and finally they are not postulated by anything. I have just shown that Virchow's definition of a cell would exclude the micro-organisms, but no one will doubt that they are living bodies.

C. Gegenbaur, one of the most acute and logical thinkers among morphologists defines cells as follows: "Cells consist of a small lump of soft living substance, which encloses a more compact body, the nucleus." This definition would also exclude the micro-organisms of the group of the schizomycetes. The text books of Frey, Orth, Toldt, W. Krause and others have accepted the definition of Max Schultze, who defines the cell-substance or protoplasm as a homogeneous, glassy-transparent ground-substance, of a semi-fluid (soft-waxy) consistency, held together by virtue of this property; with a nucleus, a nearly homogeneous, globular, almost solid body, containing a shiny nucleolus. This definition fits the schizomycetes just as little as did the two former. We must therefore conclude that these organisms are not cells at all. But they are living beings. Therefore life is not confined to the definite form called a cell, neither is the cell the simplest form of life-manifestation, and there certainly is life independent of cells.

Before entering more deeply into the question regarding the proper definition of the notion cell we must examine what the term protoplasm means. This question is not easily answered, since the word is used promiscuously by different authors to mean very different things. Confusion reigns in regard to the meaning and use of this word to such a degree that a definition is impossible. Some use the word to designate all living and acting substance; the whole substance of the cell including the nucleus, but excluding the cell-membrane, if one be present. Others mean by protoplasm only the substance of the cell minus nucleus and membrane. Others again use the term only in regard to indifferent or young cells, and do not apply it to the substance of cells which have become specifically differentiated. It appears very difficult where to draw the line in these cases between protoplasm and differentiated or higher cell substances. But few call the cell substance of muscle cells, or of red-blood-corpuscles *protoplasm*, whereas most histologists speak of the protoplasm of ganglion or cartilage or connective tissue-cells. Should any one attempt to answer the problem, whether any given cell substance is protoplasm or when it is no longer protoplasm, he will find himself unable to respond, simply because no one knows exactly what protoplasm is. The recent researches on protoplasm or cell-substance by Fromman, Arnold, and especially by Walter Fleming, on whose works I have largely drawn for the present essay, have shown that there is a definite structure in protoplasm morphologically speaking. This question, as to the nature of protoplasm, has also been studied by Heitzman, and he has arrived at the remarkable conclusion, that the entire body of all animals is one connected mass of protoplasm. Stricker has even denied that cells have definite boundaries. These last two hypotheses or discoveries, as they are claimed to be, by their authors, directly contradict the experiences of 99–100ths of all observers, and I have seen nothing which would lend even the slightest countenance to such statements. Protoplasm has been analyzed chemically and has been found to consist of albuminoid substances; it is said to be contractile, but that is not proven of everything which is called protoplasm. The protoplasm theory says: "Protoplasm is living material, all life and all organic forms are limited to it and are its products." Does this proposition deserve the name of a theory? Considering that we cannot define the word protoplasm better than the above sentences have shown, is not this theory virtually a *petitio principii*, as much, and even more so, than we were able to show the cell-theory of Virchow to be.

Our conclusions thus far might be called iconoclastic, although strictly logical and scientific. They deserve this appellation unless we can show how the errors just found, may be avoided by future investigators, or if we can advance a better hypothesis in the place of the old ones.

It cannot be my object now to enter upon a description of all the methods employed by me to establish the following facts, upon which I will base the conclusions of this essay. I reserve these details for an extensive paper, which I shall publish at another time. I can merely give some of the facts and results arrived at.

During the past five years two particular subjects in microscopical science have chiefly engrossed the thoughts of all progressive workers in this branch. The first one was the morphology and physiology of micro-organisms, which term I use to include schizomycetes and micrococci only. The second was the morphology and physiology of cell protoplasm and cell-nucleus, especially the phenomena of karyokinesis, or the division of the nucleus and the structure of cell-substance. During my studies on the subjects, I was first of all impressed by the observation that the so-called bacteria or micro-organisms can in no way be compared to what in histology of the higher animals are called cells. Following up this impression by micro-chemical experiments, I soon became convinced that the reactions of the cell-substance or protoplasm in no way corresponded to the reactions of bacteria or schizomycetes under the same treatment. This fact, however, is well established by many investigators. I found, also, that the chemical reaction of the micro-organisms closely corresponds to the reaction of the nuclei contained in the cell-substance; in fact, that it must be very similar to the substance we call nuclein. During the summer of

1884 I spent many days and nights examining and cultivating micro-organisms of different kinds. In many of my open air cultivations with hay infusions I made the discovery, that there are organisms which can only be called free living nuclei. This observation has been made by a few investigators before me, but has always been denied or disputed by others. I am ready, however, during any summer, to demonstrate and cultivate these organisms to the absolute satisfaction and conviction of even the most skeptical person. In these infusions I not only found free living nuclei, but I saw organisms in almost all stages between a free living naked nucleus to nuclei which were surrounded by a complete shell of protoplasm or cell-substance. I also saw nuclei which had a single protoplasmatic cilium, which they used as an organ of locomotion. Others of these nuclei had three, still others had as many as fifty cilia arranged around their circumference. I could plainly see how a small speck of protoplasm attached to one side of these free nuclei would develop into a hair or cilium, during a few hours that were occupied in the observation of a single organism. I could also plainly discern that within the free living nuclei there were smaller dark bodies, some of spherical, others of bacillar shape, which were in constant lively motion. I am sure also that I often saw them arrange themselves into rather regular figures previous to division. I never succeeded in observing an entire process of division either in a free living nucleus or in an isolated living cell. The cause of this was that I could not keep the organisms alive long enough by any means at my disposal. I can, however, corroborate the observations of Walter Fleming regarding the process of nuclear division on hardened specimens to the very utmost detail. Another observation that I can state with certainty is that the movable bodies contained within the nucleus sometimes leave the body of the nucleus and swim away from it under the cover glass in the water or solution of nutritive salts. I also saw bodies which evidently were micro-organisms, either bacteria or micrococci, enter into these free nuclei, probably through the same pores or holes in the nuclear membrane through which the others had just left the nucleus.

During the summer of 1885 I spent many hours in experiments, conducted with a view to solve the problem as to what would become of a living cell if left to die in a sterilized nutritive fluid. I may be permitted to state that I became almost convinced that the death of cells under these circumstances is attended by the development of micro-organisms. My observations on this point, however, were not absolutely satisfactory. It is almost impossible to exclude all sources of error, and I do not wish to be understood as having stated this to be a certain fact. Most of these experiments were made with a Zeiss 1–25 inch lens Before leaving this part of our discourse I must say that all later observers seem to agree on the fact that the nucleus is the essential part of a cell, and that the reproductive function at least emanates from it. The other functions of the nucleus, if there be any, are unknown. The fact, however, that reproduction starts and is principally carried on by the nucleus, sufficiently proves that the nucleus is the most important part of the cell. As long as the idea that a nucleus which is not surrounded by protoplasm or cell-substance does not exist as a living entity controls the mind, it will be very hard to grasp the weight and bearing of the above observations.

Histologists who are accustomed to work almost exclusively with tissues of higher organisms never think of a living nucleus without protoplasm, even as a possibility. After a time, when the fact that there are numerous organisms which are homologous to free nuclei shall have been recognized and corroborated, the supposition that the nucleus is, genetically speaking, the older and most essential part of a cell will seem as evident as it has seemed heretofore that the cell-substance was the important part of the cell. This latter opinion is based upon the hypothesis that the nucleus is only "condensed or differentiated protoplasm." It supposes that protoplasm is the basis of all life. But we know of many organisms, for instance, schizomycetes or micrococci, whose chemical and morphological appearances in no way correspond to those of protoplasm. We know also that the nuclei of cells, as well as the free living nuclei, are not protoplasm. The protoplasm theory must therefore be given up; it is imperfect and is not called for by the facts. I should not wonder if in a few years it will appear strange how such an error as the slighting of the nucleus in favor of the cell-substance, making the latter the more important, and giving the nucleus only a secondary position, could have occurred. The greatest living investigators, men who usually proceed in a most logical and scientific way, have fallen into this prejudice. We know of no example of a cell in the animal kingdom that neither has nor ever had a nucleus. The so-called cell-substance, however, is not really so constant a factor; we find it in the most varying conditions. We do not know that any cell without a nucleus is capable of division or multiplication, but I have seen the division of the living naked nucleus. These facts all tend to demonstrate the primary and essential importance of the nucleus in contradistinction to the cell-substance. The function or use of the latter is unknown. Possibly it serves the purposes of nutrition in the beginning and is afterwards used for a great variety of purposes, the nucleus always being the essential part so long as it lives.

No one will dare to deny that the great progress made in the natural sciences in modern times is chiefly due to the recognition of the great principle of evolution. This principle itself was established most thoroughly by the two disciplines called comparative anatomy and embryology. It is very evident that the main progress we have made towards a scientific understanding of organic life, has been reached not by study only of the adult or perfect stages of our objects, but by the observations made on the different stages of the growing organism during its development. Gegenbaur says: "Thus ontogeny and comparative anatomy appear as the scientific basis of human anatomy." The latter discipline has been placed upon a more scientific basis, since the introduction of the onto- and phylo-genetic methods

of investigation. These methods, I deem, are the ones which should be employed in all instances where a question arises concerning the position of any given organism in the pedigree of life.

Mr. Ernst Haeckel himself has fallen into a grave error here, which undoubtedly will cause the toppling over of his entire structure, grand and wonderful as he has built it. Mr. Haeckel is the author of the biogenetic fundamental law. This law, generally speaking, says: Embryology (ontogenesis) is a condensed and abbreviated repetition of phylogenesis, or the development of the race. We may accept this thesis for the present, reserving the right to modify or amend it in future. Mr. Haeckel started his tree of life upon the foundation of protoplasm, from this he jumped to what he calls monera. These organisms are cytodes without a nucleus, merely small pieces of cell-substance or protoplasm. Next he allows a nucleus to be differentiated out of this protoplasm. These, then, are his *cells*. In order to decide the question where the cells belong in the scale, Mr. Haeckel should have used the methods above mentioned; and under the guidance of his biogenetic law he might have undoubtedly reached the true conclusion.

This now brings me to the main point of this essay. In order to decide what the cell is, let us see whereto the ontogenetic method will lead us. No sane person will claim that a cell must needs be the lowest living entity. If, therefore, we can observe the ontogenesis of higher organisms, why may we not try to study the development of a cell? I have faithfully tried this method with all the technical appurtenances, aids and ingenuity at my disposal. I have only partially succeeded, but what I have seen is very encouraging. I repeatedly saw a naked living nucleus, while under observation, develop or attract unto its surface (out of the water or nutritive fluid in which the nucleus was examined) small particles of substance which seem to me to correspond exactly in optical appearances to what is usually called cell-substance or protoplasm. The comparative method, when applied to the examination of free nuclei and cells, yielded an almost perfect result. As I stated above, I saw all the stages of living organisms which naturally range between a naked nucleus and one entirely covered by cell-substance. This observation is readily made and can be corroborated by any careful microscopist who is accustomed to work with high powers.

Placing the results thus obtained together with the beautiful work done by Fleming, Rabl, Arnold, Strassburger, Kupfer and others on karyokinesis, the conclusion which seems absolutely unavoidable is that the nucleus existed before the so-called cell and before protoplasm. Protoplasm or cell-substance is a product of differentiation of the nucleus.

I extended my investigations one step farther after I had determined the primary importance of the nucleus. I attempted to analyze the nucleus itself by the methods of development and comparison. As above stated, I plainly saw that within the nucleus there existed active moving bodies of definite forms. Their movements remind the observer of the movements of the smallest micrococci and bacteria. The refraction of light and their chemical reactions also correspond closely to those of these lowest of all known organisms. As above stated, these bodies sometimes leave the nuclei through pores in the nuclear membrane, and others seem to enter into the same places. This, together with the observation, which is not yet well enough established to be convincing, that a cell or its nucleus, when left to die in a sterilized nutrient fluid, will set free micro-organisms, would seem to indicate the hypothesis that the nucleus is a conglomeration of micrococci or a *syncoccium*. This, however, I desire to have understood is by no means a conclusion which deserves any more notice than a preliminary hypothesis, based as it is on observations which I consider entirely too doubtful for a scientific result.

Before ending my essay I may take the liberty of setting up the following theses as the result of my observations and reflections:

Theses.

I. The hypothesis that protoplasm is the basis of all life is untrue.

II. The hypothesis that cells are the result of the differentiation of protoplasm is untenable.

III. The hypothesis that the so-called cytodes, or cells without nuclei, are phylogenetically the ancestors of cells (with nuclei) is false.

IV. The nucleus is phylogenetically the progenitor of the cell.

V. A cell is an organism which is developed by differentiation and growth from a nucleus.

VI. The process of karyokinesis is a part of the ontogeny of cells.

Hypothesis.

The lowest known stages of the phylogenetic tree of organic beings are:

I. Micro-organisms.
II. Free nuclei = synococcium?
III. Cells.

In order to show the usefulness of my hypothesis, let us look for a moment at the origin of hereditary disease. It is a fact that a parent will transfer to its offspring many of its peculiarities. One of these is sickness. We know that tuberculosis, commonly called consumption, is often inherited. We know that this disease is caused by the development of a micro-organism, which is called bacillus tuberculosis.

It has been necessary to accept the hypothesis that the parent only transmits a peculiar diathesis to the offspring, which makes it more susceptible to the micro-organism. But, as all practitioners of medicine know, this hypothesis is not tenable in all cases. There are cases known where children were separated from their parents soon after birth—say seven orphans were adopted by seven different families, and placed in the most varying external relations, still not one of them lived to be 28 years of age. Is it reasonable to believe that a tubercle bacillus found its way into each of their lungs and there set up its work of destruction? It seems to me that an explanation in every way more plausible can be derived from the

supposition that the egg cell of the mother or the spermatozoon of the father bore within them the taint, perhaps the veritable bacillus itself, or the homologon of a spore as one of the component parts of these elements.

CONCERNING VAGINAL INJECTIONS.[1]

BY W. THORNTON PARKER, M.D. (MUNICH),

OF NEWPORT, R. I.

Almost every work upon gynecology acknowledges the importance of vaginal injections in the treatment of disease of the pelvic viscera, and at present it seems to be the general opinion that these injections must be received by the patient while lying on her back with elevated hips, if good results are to be expected.

The uselessness of the small stream attainable from almost every syringe is well known, and while Scanzoni has taught for so many years the necessity for copious injections, he has never supplied the apparatus. If we consult our works on gynecology, we will be surprised to discover the numerous syringes and appliances offered for vaginal injections.

So miserable, useless and even dangerous are the syringes supplied that Dr. Emmet has concluded that the only syringe worth using is the "Fountain," and "that no patient can use vaginal injections efficiently herself, but must have them administered by another."[2] For *this* vaginal injection the services of a nurse or servant must be employed, or else elaborate preparation of bed and bed clothing, and the many details connected with the operation must be carefully carried out. It is very interesting to consider the minute details and the complicated methods recommended by such writers as Thomas and Emmet, who are such giants in the practical operations which have revolutionized gynecological surgery. A collection of the descriptions for preparing patient and bed for recumbent vaginal injections is really astonishing, and in many cases one is forced to either devote a good hour to unravel the puzzle, or else to conclude that a patient once subjected to such fussy preparation *might* be willing to receive *one* such injection, but hardly a second. Indeed, to subject a nervous patient to such elaborate preparations is a miserable imposition, and is undoubtedly very often sufficient to discourage further interest in the progress of the treatment of the case. Such discouragement has indeed often put a positive stop to all further attempt at a case, and the woman of ordinary modesty feels outraged by the exposure necessary for the injection, which disturbs her much more than mounting the elaborate brass-mounted table so common in the offices of our amateur gynecologists.

The use of the vaginal syringe should be accomplished with as little annoyance to the patient as the simple operation of washing her hands or her face, and when this can be demonstrated then, and not till then, will the bidet find its way for daily use in countless homes, not as a preventative against conception, but as a precaution against disease. Thomas, however, opposes the sweeping assertion of Emmet, that vaginal injections received from a bidet are useless, and is willing to allow that some good can be derived from such injections, but in a limited, very limited, degree.

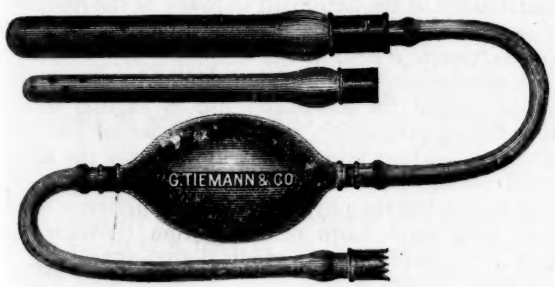
When we read on further in Dr. Thomas's work, and find that he recommends the common Davidson syringe, one cannot be surprised that his doubts are freely expressed as to the efficacy of vaginal injection. He has freely quoted Scanzoni in urging copious vaginal injections, and yet he must know that at present the average so-called female syringe is utterly unable to supply a sufficiently copious stream to be of any use whatever. The works of American gynecologists are all in error on this important topic, but if we consult the writings of Barnes and Edis we shall find that vaginal injections from the bidet, or even the common basin, are highly recommended and are frequently successful, because the syringes sold in England are mostly the admirable ones of Higginson, and not the useless apparatus found for sale in our drug shops. Few writers on gynecology have presented such a useful and practical book as that of Edis, on "Diseases of Women," and some of his remarks are so excellent that I take the liberty to quote them: "Syringes made of India-rubber are the most suitable; pewter or glass should never be used. . . Higginson's syringe is one of the most convenient form. . . The vaginal tube should be adjusted so as to lessen the force with which the fluid is injected, and prevent the possibility of the nozzle being inserted into the cervix. Instances of severe uterine colic, intense agony, peritonitis, and even death, from the employment of vaginal injections, have been recorded.[1] In some cases this may possibly be explained by the tube being inserted into the patulous cervex of a retroverted uterus. We cannot therefore be too careful in explaining to the patient how to use the syringe properly." Barnes asserts that "injections fail because they do not touch the main seat of the disorder, which in the majority of cases is in the uterus itself; but although they fail to cure, they may be useful as far as they go." He, however, recommends vaginal injections with the Higginson syringe, and considers the bidet the useful vessel that it is.

In 1879 I devised a vaginal syringe, made by Tiemann & Co., of New York,[2] which has since been greatly improved. The bulbs for this syringe were manufactured at first in Paris, making the syringe very expensive, but lately Messrs. Tiemann & Co. have manufactured these bulbs in New York, and it is now possible to obtain the best vaginal and rectal syringe which I know of, not excepting the excellent English Higginson, from them. This syringe is made entirely of rubber, and the vaginal and rectal tubes are perfectly flexible. There is no terminal orifice, but the sides are perforated with velvet eyes for a distance of nearly two inches from the end. These rubber

[1] Read before the Newport Medical Society on October 7, 1885.
[2] Quoted by Thomas, "Diseases of Women," p. 74.

[1] A death from the use of a Davidson's syringe is reported in the Gynecological Journal, 1872, p. 340, et seq.
[2] New York Med. Record, July 5, 1870.

syringe points do not lacerate the mucous membrane nor produce the injury so often caused by the hard metallic tubes. The bulb and tube are large and



afford a copious supply of water. For use in the recumbent position the vaginal douche pan invented by Dr. Baker, or the Reynolds siphon bed-pan manufactured by Otis Clapp & Son, are to be recommended; but the necessity for the use of the bed-pans referred to is only when the patient is too feeble to administer the injections herself.

With the bidet and the syringe which I have already described, a safe and useful vaginal injection can be obtained.[1] The patient can make herself very comfortable on the bidet, and the syringe is so constructed that very little effort is required to empty the bulb, and pour out into the vagina a copious supply of water, estimated as being many times greater than that obtained from any other syringe at present in existence. The dangers of uterine colic and other accidents while using this syringe and the bidet are reduced to the minimum. A thorough washing of the vaginal walls is easily accomplished, and a large bidet allows a much greater supply of water, and is consequently a cleaner apparatus than can be possible from any bed-pan or fountain syringe. It is worth something for the patient to be able to arrange for and to use the bidet without trouble and innumerable preparations. It should be used just before stepping into bed. I direct my patients to fill the bidet as full as possible with water from 100° to 110° F. in temperature, when ready for use. The patient should have the legs covered with warm stockings, the feet encased in warm slippers, and if weak a warm wrapper can be thrown over the shoulders. The injection should be continued for at least ten minutes. The ingredients to be added to the hot water should be carefully mixed with the water before using. After the injection the parts should be well dried with a soft towel, a suppository introduced and a napkin applied immediately upon entering the bed. For the treatment of ordinary leucorrhœa I direct that the hollow vaginal suppositories of Dr. Chas. L. Mitchell, of Philadelphia, and a formula devised by myself, consisting of sulpho-carbolate of zinc, grs. x, and sulphate of morphia gr. ss., be used, or else the suppositories of boro-glyceride, made for me by Messrs. Theodore Metcalf & Co., of Boston. In the *New York Medical Record*, Sept. 24, 1882; the *American Journ. of Obstetrics*, Feb., 1884; the *Philadelphia Med. Times*, Sept. 20, 1884; and the *Virginia Medical Monthly*, August, 1885, I have called attention to the valuable properties of boro-glyceride, especially in gynecological practice. For those of my readers who are not acquainted with boro-glyceride I would quote the following from the *British Medical Journal:* "Boro-glyceride is a body of definite chemical composition ($C_3H_5BO_3$), which forms a definite hydrate with a large quantity of boiling water, and is not, we are informed, decomposed when diluted in the proportion useful in surgery—one part to twenty or thirty parts of water. Such a solution is inodorous, has a slight saltish taste, and is quite unirritating to a wounded surface. Under its use wounds of all kinds do extremely well, and heal fully as rapidly as under carbolic acid dressings, over which boro-glyceride has the advantage that it does not irritate the wound or the surrounding skin, and that it is, so far as is known, entirely innocuous when applied to a wounded surface." Messrs. Theodore Metcalf & Co., of Boston, have at my suggestion made vaginal and rectal suppositories of boro-glyceride in combination with gelatin and pencils of the same for intra-uterine and other uses. These contain twenty-five per cent. of boro-glyceride. The suppositories are of three sizes, Nos. 1, 2 and 3. No. 1, the smallest, is a useful suppository in various rectal disorders, particularly in hæmorrhoids and pruritus ani. They are also useful in the treatment of thread worms. No. 2 is of medium size, for either vagina or rectum, and No. 3 is indicated where a larger amount of boro-glyceride is required in cases of chronic leucorrhœa, vaginitis, or of uterine diseases in general. The largest suppositories should not be used more than three nights in succession, and experience has taught me that the best results are obtained by using them every other night. Boro-glyceride is an excellent application for a lacerated cervix, spread thickly on the diseased surface. It can also be spread on absorbent cotton, and introduced and applied in that manner. The cleanliness and gentleness of this remedy, and the steady improvement resulting from the use of boro-glyceride, will be very satisfactory to both patient and physician.

Dr. Storer considers that four general indications exist for vaginal injections: 1. As a lavement for cleansing purposes. 2. For the purpose of producing a deep-seated effect for relieving chronic congestions. 3. Where an exosmotic effect is desired, as in the use of saline and other solutions. 4. Where a local effect is desired, corresponding with gargling for the throat, etc. In the latter class of cases the recumbent position might be more advisable. He thinks that vaginal injections are unquestionably too often prescribed, and that physicians are reckless in directing ingredients for vaginal injections that are of the most unsuitable kind, and often productive of lasting injury. Sometimes even dangerous ingredients are used, creating instead of alleviating dis-

[1] The bidet is a triangular stool about sixteen inches high, containing a porcelain basin which can be easily lifted out and cleaned. The stool is peddle-shaped, the broad end for the support of the buttocks, and narrow anteriorly. It can be obtained at many of the house furnishing goods stores. Incidentally it may be well to mention the fact that the bidet is useful for the treatment of rectal diseases of both sexes. For bathing hemorrhoids or prolapsed ani it is certainly preferable to the pans so generally recommended. A modest prejudice exists against the bidet, many ladies disliking to use one, since it is so well known that French women use them to prevent conception.

ease. Such injections are sometimes followed by a more serious disease than they were at first intended to relieve. The same discretion should be used in prescribing vaginal injections that one employs in treating the mucous membrane of the eye or fauces. Every gynecologist must have witnessed the deplorable effects resulting in almost ruined vaginal walls from too severe injections of such substances as alum, tannic acid, etc. With the most ordinary skill on the part of the medical attendant, the syringe which we recommend ought to be a safe one. It is well, however, to remember that serious injury has resulted from neglect to empty the air from the tube before inserting into the vagina. Care should be taken that no air enter the bulb or tube while filling the syringe. By using a bidet this accident is more readily avoided if plenty of water be used, but with an ordinary hand-basin it is of frequent occurrence.

Many syringes are so constructed that a pint or more of water answers for the entire "sitting," being used over and over again, becoming filthier and filthier each moment. Such machines have little to recommend them. A copious water supply and a copious stream are the most desirable features in a good vaginal injection, and a syringe which cannot accomplish this is simply worthless. Cheap syringes are commonly offered for sale because they are cheap. For a good vaginal syringe a fair price must be paid. In drawing attention to the dangers from careless vaginal injections, it may be well incidentally to note the recklessness with which some medical men recommend intra-uterine injections. This is the more inexcusable, since so many general practitioners practice gynecology to a considerable extent. Intra-uterine injections are seldom justifiable, and then only when they can be employed by a safe instrument acting more or less on the principle of the double canula. For the vaginal injection with the syringe we recommend, the best possible ingredients are boro-glyceride in solution, borax, and even common salt in suitable proportions. Much of the benefit derived by women from sea-bathing, aside from the general constitutional tonic effect of sea-side air, and salt-water baths, is the fact that the sea water does actually enter the vagina during the usual exercise of bathing, and exerts thereby a cleansing, healing effect upon the vaginal walls. While the possibility of such entrance of salt water has been denied by some, on the ground that the walls are too closely approximated to admit any water, the fact remains the same that water actually does enter, and that inquiries made have proved this beyond question, not only in the case of multiparæ, but of others, and even virgins. The closure of the vaginal walls is not like that of the closure of sphincter ani. Besides these preparations there are others which can be used in greater or less strength, according to indications. The large tube will be found often too large for unmarried women, and for such cases the rectal tube can be used, but generally speaking the larger vaginal tube is suitable where injections are found to be necessary. The use of the syringe cannot alone cure diseased vaginal walls, and the atomizer and other appliances must play their part, not to speak of the surgery necessary for the uterus and the special treatment needed in all uterine cases. In vaginal injections properly administered we have an invaluable aid in the treatment of many of the diseases of women, and a guard against the attacks of diseases to which woman is so liable.

In conclusion, the physician should be careful to advise against the prolonged use of vaginal injections during pregnancy, and also to caution patients against using injections of any kind during the menstrual period. To many these warnings may seem superfluous, but the physician of any experience must have seen much harm resulting from ignorance of these very simple laws, in medical attendants.

Newport, October 7, 1885.

SIMPLICITY AND ADAPTABILITY IN THE TREATMENT OF FRACTURES.

BY GEO. N. MONETTE, M.D.,

OF NEW ORLEANS, LA.

In a former issue of THE JOURNAL Dr. John B. Roberts, of Philadelphia, made an especial mention and advocacy of simplicity, as also strict anatomical appreciation of surgical appliances, in the treatment of fractures. Text-books, too often, bias the practitioner in his isolated field of labor, and he is often denied treatment of cases, owing to his not being supplied with orthodox paraphernalia requisite for certain cases. Let each one, so called upon for surgical advice, only exercise his inherent ingenuity, and then make such an appliance as common sense and the anatomico-surgical indication would point to.

The preservation of the integrity of the limb, both as appertaining to bony and muscular and integumentary tissues, must of necessity engage the attention of the attendant. Having a compound fracture, the appliance must be adapted with especial reference to immobility for the bone, as a comfortable exit at the seat of the laceration for all suppurative discharges, guarding cautiously against too great compression of the sympathetically inflamed tissue. This must not be actuated by any routine, as laid down in the books. I have been able to treat and control successfully all of my cases of fracture upon the impulsive plan, not by fixed laws relative to authorities, but as the case and common sense would indicate, save that, with Liston's long lateral splint for fracture of femur. The use of Liston's straight lateral splint for fractures of the femur, is confined by the indications for its use. In my experience, I have had one case of fracture of the femur which resulted with overlapping extremities; not through any fault of the splint, nor inaptitude on my part, but through a meddlesome daughter, who slackened the perineal strap after my morning (*daily*) visit, when I had at each visit drawn the strap taut. Her interference caused some irregularity; I had no recourse, hence my case was not a success.

In compound comminuted fractures the utmost care in the application of dressings must be exercised; and as to routine bandaging, the same must be rigidly dispensed with. I have treated such cases

without a bandage, and have also departed from the prescribed course for such cases. Each case develops features of its own, which necessitates a certain method of utilizing appliances, and the identical repetition as to seat of fracture in another case would reveal diverse phenomena. Hence it becomes the imperative duty of the surgeon to devise his appliances suitable to his needs, exercising his individual ingenuity of adaptation, and with especial appreciation of the anatomy of the part involved in its mechanico-mobility, normally, and after union of the fracture.

As regards fracture of the femur in children, suppose we have a case in an infant six or eighteen months old. What can be more cruel than a straight splint? My plan for treating these cases is to put them in a flexed position, similar to the sitting posture, and with extension of the anterior and posterior splints about the waist, and held by a band, and the lower extremities of the splints carried to or beyond the toes. By this method there is the most rigid immobility of the limb, and with comfort to all parts enveloped by the bandages. My first application of this form of splint was in the spring of 1868, and whenever a suitable case presents I utilize the identical form of splints, anterior and posterior, in conformity to a sitting posture.

Each day develops some ingenious contrivance for every form of fracture, but it is incumbent upon the surgeon to dispense with inventions to a great extent and utilize his ingenuity conformably with indications of his particular case; and there will be neither fault nor deformity.

Fractures of the clavicle offer some discouraging results, as the movements of the thorax (as in lying down) are prone to militate against permanent adjustment of any sort of dressing. It seems to me that a little more simplicity is requisite; for instance, simply binding the arm to the thorax by a bandage. In fractures of the clavicle in infants and very young children, the former particularly, I have pinned the sleeve of the arm of the fractured side to the dress anteriorly, or about the median line, across the chest. Such treatment has resulted successfully, and with no more prominence of a callus than from the routine Fox apparatus, or that of any other specialist in surgical appliances. This confinement is readily tolerated by children, and a little pain causes them to bear it patiently. The nature of the fracture in children tends to confirm my method. With diminished ossific development, the fracture is not distinct; hence the reapposition of the splintered fragments is readily accomplished; solidification takes place promptly, and immobility is attained sooner than in similar fractures in adults.

I need not mention other fractures, as simplicity can be more readily appreciated in those enumerated than in those not mentioned, as the form of treatment is absolutely indicated. Recovery and restitution are much more speedy and satisfactory, and at the same time careful inspection can be made by the attendant at opportune periods, without fear of compromising the progress of bony union.

285 Camp Street.

MEDICAL PROGRESS.

DISINFECTANTS.—The Committee on Disinfectants of the American Public Health Association conclude their report as follows: The experimental evidence recorded in these reports seems to justify the following conclusions: The most useful agents for the destruction of spore-containing infectious materials are: 1. Fire. Complete destruction by burning. 2. Steam under pressure. 110° C. (230° Fahr.) for ten minutes. 3. Boiling in water for one hour.[1] 4. Chloride of lime.[2] A 4 per cent. solution. 5. Mercuric chloride. A solution of 1 : 500.

For the destruction of infectious material which owes its infecting power to the presence of micro-organisms not containing spores, the Committee recommend: 1. Fire. Complete destruction by burning. 2. Boiling in water half an hour. 3. Dry heat. 110° C. (230° Fahr.) for two hours. 4. Chloride of lime.[3] 1 to 4 per cent. solution. 5. Solution of chlorinated soda.[4] 5 to 20 per cent. solution. 6. Mercuric chloride. A solution of 1 : 1000 to 1 : 4000. 7. Sulphur dioxide. Exposure for twelve hours to an atmosphere containing at least 4 volumes per cent. of this gas, preferably in presence of moisture.[5] 8. Carbolic acid. 2 to 5 per cent solution. 9. Sulphate of copper. 2 to 5 per cent. solution. 10. Chloride of zinc. 4 to 10 per cent. solution.

The Committee would make the following recommendations with reference to the practical application of these agents for disinfecting purposes:

For Excreta.—(*a*) In the sick-room: For spore-containing material 1. Chloride of lime in solution, 4 per cent. 2. Mercuric chloride in solution, 1 : to 500.[6] In the absence of spores; 3. Carbolic acid in solution, 5 per cent. 4. Sulphate of copper in solution, 5 per cent. 5. Chloride of zinc in solution, 10 per cent. (*b*) In privy vaults: Mercuric chloride in solution, 1 : 500.[7] (*c*) For the disinfection and deodorization of the surface of masses of organic material in privy vaults, etc.: Chloride of lime in powder.[5]

For Clothing, Bedding, etc.—(*a*) Soiled underclothing, bed linen, etc.: 1. Destruction by fire, if of little value. 2. Boiling for at least half an hour. 3. Immersion in a solution of mercuric chloride of the strength of 1 : 2000 for four hours.[8] 4. Immersion in a 2 per cent. solution of carbolic acid for four hours. (*b*) Outer garments of wool or silk, and similar articles, which would be injured by immersion in

[1]This temperature does not destroy the spores of *B. subtilis* in the time mentioned, but is effective for the destruction of the spores of the anthrax bacillus and of all known pathogenic organisms.

[2]Should contain at least 25 per cent. of available chlorine.

[3]Should contain at least 3 per cent. of available chlorine.

[4]This will require the combustion of between three and four pounds of sulphur for every 1,000 cubic feet of air space.

[5]The addition of an equal quantity of potassium permanganate as a deodorant, and to give color to the solution, is to be recommended (*Standard Solution No. 2*).

[6]A concentrated solution containing four ounces of mercuric chloride and one pound of cupric sulphate to the gallon of water, is recommended as *Standard Solution No. 3*. Eight ounces of this solution to the gallon of water will give a dilute solution for the disinfection of excreta, containing about 1 : 500 of mercuric chloride, and 1 : 125 of cupric sulphate.

[7]For this purpose the chloride of lime may be diluted with plaster of Paris, or with clean, well-dried sand, in the proportion of one part to nine.

[8]The blue solution containing sulphate of [illegible] two ounces of the concentrated [illegible] for this purpose.

boiling water or in a disinfecting solution: 1. Exposure to dry heat at a temperature of 110° C. (230° F.) for two hours. 2. Fumigation with sulphurous acid gas for at least twelve hours, the clothing being freely exposed, and the gas present in the disinfection chamber in the proportion of four volumes per cent. (*c*) Mattresses and blankets soiled by the discharges of the sick: 1. Destruction by fire. 2. Exposure to superheated steam—twenty-five pounds pressure—for one hour. (Mattresses to have the cover removed or freely opened.) 3. Immersion in boiling water for one hour. 4. Immersion in the blue solution (mercuric chloride and sulphate of copper), two fluid ounces to the gallon of water.

For Furniture and Articles of Wood, Leather, and Porcelain.[1]—Washing, several times repeated, with: 1. Solution of mercuric chloride, 1 : 1000. (The blue solution, four ounces to the gallon of water, may be used.) 2. Solution of chloride of lime, 1 per cent. 3. Solution of carbolic acid, 2 per cent.

For the Person.—The hands and general surface of the body of attendants, of the sick, and of convalescents at the time of their discharge from hospital: 1. Solution of chlorinated soda diluted with nine parts of water (1 : 10). 2. Carbolic acid, 2 per cent. solution. 3. Mercuric chloride, 1 : 1000; recommended only for the hands, or for washing away infectious material from a limited area, not as a bath for the entire surface of the body.

For the Dead.—Envelop the body in a sheet thoroughly saturated with: 1. Chloride of lime in solution, 4 per cent. 2. Mercuric chloride in solution, 1 : 500. 3. Carbolic acid in solution, 5 per cent.

For the Sick-Room and Hospital Wards.—(*a*) While occupied, wash all surfaces with: 1. Mercuric chloride in solution, 1 : 1000 (the blue solution containing sulphate of copper may be used). 2. Chloride of lime in solution, 1 per cent. 3. Carbolic acid in solution, 2 per cent. (*b*) When vacated: Fumigate with sulphur dioxide for twelve hours, burning three pounds of sulphur for every 1,000 cubic feet of air space in the room; then wash all surfaces with one of the above-mentioned disinfecting solutions, and afterward with soap and hot water; finally throw open doors and windows and ventilate freely.

For Merchandise and the Mails.[2]—The disinfection of merchandise and of the mails will only be required under exceptional circumstances; free aëration will usually be sufficient. If disinfection seems necessary, fumigation with sulphur dioxide, as recommended for woolen clothing, etc., will be the only practicable method of accomplishing it.

For Rags.—(*a*) Rags which have been used for wiping away infectious discharges should at once be burned. (*b*) Rags collected for papermakers during the prevalence of an epidemic should be disinfected before they are compressed in bales by: 1. Exposure to superheated steam (twenty-five pounds pressure) for ten minutes. 2. Immersion in boiling water for half an hour. (*c*) Rags in bales can only be disinfected by injecting superheated steam (fifty pounds pressure) into the interior of the bale. The apparatus used must insure the penetration of the steam to every portion of the bale.

For Ships.—(*a*) Infected ships at sea should be washed in every accessible place, and especially the localities occupied by the sick, with: 1. Solution of mercuric chloride, 1 : 100 (the blue solution heretofore recommended may be used). 2. Solution of chloride of lime, 1 per cent. 3. Solution of carbolic acid, 2 per cent. The bilge should be disinfected by the *liberal* use of a strong solution of mercuric chloride (the concentrated solution—"blue solution" of this salt with cupric sulphate may be used). (*b*) Upon arrival at a quarantine station an infected ship should at once be fumigated with sulphurous acid gas, using three pounds of sulphur to every 1,000 cubic feet of air space; the cargo should then be discharged on lighters; a liberal supply of the concentrated solution of mercuric chloride (four ounces to the gallon) should be thrown into the bilge, and at the end of twenty-four hours the bilge-water should be pumped out and replaced with *pure* sea-water; this should be repeated. A second fumigation after the removal of the cargo is to be recommended; all accessible surfaces should be washed with one of the disinfecting solutions heretofore recommended, and subsequently with soap and hot water.—*Report of the Committee on Disinfectants of the Amer. Pub. Health Association.*

THE PREVENTION OF MAMMARY ABSCESS.—DR. A. W. EDIS, in a note on this subject, says: It being believed that friction of any kind, in the large majority of cases, rather tended to produce than prevent mammary abscess it was long since discarded. The application of a long strip of belladonna plaster, sixteen or eighteen inches long and six or eight inches deep, with round apertures, so as to leave the nipples free, tightly across the chest, the breasts being brought well up towards the median line, for many years was the only resource adopted, beyond careful regulation of the diet, abstention from fluids, gentle purgation, etc. This method never failed, but it was often found that the smell of the belladonna produced so much nausea in delicate patients as to preclude the employment of it. Thinking that, in all probability, the pressure exerted, contributed greatly to the advantage derived, I was induced to rely upon a few turns of a rib-bandage, or the application of a thin towel or diaper across the chest, the breasts being brought well towards the sternum. Since adopting this method, I have never known it fail. Not a single instance of mammary abscess has occurred in a long series of cases, extending over several years. The only precaution requisite is to apply the pressure on the second day following parturition, before the breasts begin to fill, and to see that the whole of the glands are included.

It is well to elevate the shoulders somewhat more than usual, and not to allow the bed-cloths to cover the upper part of the chest, the sheet alone sufficing to prevent any risk of chill. Restriction as to the amount of fluid, for the first few days, and attention to the bowels, are all that is requisite to ensure success. Some little inconvenience, a feeling of tightness, or burning pain, is often experienced; but if the

[1] For articles of metal, use Solution No. 3.

[2] In order to secure penetration of the envelope by the sulphur dioxide, all mail matter should be perforated by a cutting stamp before fumigating.

pressure be maintained, no harm results, and within the course of a few days, the turgescence subsides, and the difficulty is at an end. In order to keep the bandage or towel from slipping down, a shoulder strap from back to front, or merely pinning the bandage to the night-dress, suffices. Where the secretion of milk seems to be unusually abundant, a mixture of bromide and iodide of potassium may be prescribed with benefit. In only a few instances has it been found requisite to draw off a small quantity of milk, by means of a breast-pump or exhausted soda-water bottle, and this only once or twice.

I venture to think these remarks may prove of value to many, as I not unfrequently see instances of mammary abscess brought on, I verily believe, by the old-fashioned method of rubbing and irritating the breasts. —*British Medical Journal*, Nov. 7, 1885.

HYPNONE AS A HYPNOTIC.—The fanciful name hypnone has been applied to methylphenylacetone. At the request of M. Dujardin-Beaumetz, who insists that it should be used only in cases of sleeplessness from over-excitement of the brain, and not where there is pain, M. Pierre Vigier (*Gaz. hebdom. de Méd. et de Chir.*) has experimented with regard to its administration. The amount necessary to produce sleep varies from four to ten drops, which should be taken all at once, for divided doses do not succeed. The drug is scarcely soluble in water, and but slightly soluble in glycerine; but dissolves readily in alcohol. A syrup may be made in the following proportions:

Hypnone	1 drop;
Ninety per cent. alcohol	15 grains;
Syrup of orange-flowers	75 "
Syrup of cherry-laurel	14 "

Let the drop of hypnone fall into the alcohol, add the syrups, and keep in a tightly-stopped bottle. In like manner an elixir may be made of the following ingredients:

Hypnone	1 drop;
Sixty per cent. alcohol, Syrup of Mint, each	45 grains.

The taste of these preparations is said to be very bearable. The drug itself has a very hot taste, and its odor reminds one of essence of bitter almonds, with a suggestion of wintergreen.—*New York Medical Journal*, Dec. 19, 1885.

NERVE SUTURE, WITH IMMEDIATE RESTORATION OF FUNCTION.—One of the most remarkable results of the suture of a nerve ever reported is given by SURMAY, in the *Archives Gén. de Médecine*, for Oct. 1885. The case was that of a man who had received a cut above the wrist, resulting in abolition of the function of the median nerve. For some time no attempt had been made to correct the defect. Then electricity was tried without result. Six months after the accident, Surmay resected about three-quarters of an inch of the nerve, and joined the cut ends with a fine carbolized catgut thread, which had been ingeniously inserted before the intermediate portion was cut out. The function of the nerve was reëstablished within twenty-four hours! The parts which had before been affected—the second phalanx of the thumb and the two terminal phalanges of the index and middle fingers—were found to have wholly recovered their general and tactile sensibility; while the sensibility to pain and temperature had returned in the thumb and in the upper half of the phalanges of the other fingers involved. Complete restoration followed after several months.

This remarkable case furnishes a strong support to operative interference in other cases than those in which loss of function results from traumatic division of a nerve; for in this one the nerve was not found divided, but the part under the wound was occupied by an enlargement which was formed by pure hypertrophy of the neurilemma. It is always surprising that the cicatricial changes which must take place in or immediately adjacent to, a resected nerve, should have so little effect in disturbing the result of the operation. In the case mentioned, it seems to have had some disturbing influence, although this passed off with time. Further, this case is interesting as raising questions in physiology which will bear close study, namely, as to the reinstatement of one part of the function of a nerve while another remains in abeyance, as well as in regard to the relation of the different forms of sensation, which are commonly divided into: common sensation or sensation of pain, and the tactile sense, which includes appreciation of changes in temperature. As Surmay's case seems to have been studied with great care, and to present many of the conditions of scientific accuracy, it may contribute materially to our knowledge of the physiology of the nerves.—*Medical News*, Dec. 19, 1885.

GRADUATED BATHS IN TYPHOID FEVER.—DR. J. PEDLOW, in a note on this subject, says: During my last year in India I used a graduated bath in all cases, as a rule, where the temperature reached 102.5° at 3 o'clock in the afternoon, and was rising. I had a special bath made for this purpose, a little over five feet long, and rather shallow. The patient, rolled in a thick blanket, was lifted into it, and the head rested on a pillow in the bath. The water was usually at a temperature of 86° Fahr.; instead of reducing it, it was gradually brought up to 92° and 93°. By this means, when the patient's temperature remained high, I was able to keep them in the bath for an hour or more without much feeling of chilliness. The tendency to the latter was also often obviated by keeping the hands in an India-rubber bag filled with hot water. The temperature was frequently taken in the mouth. Many patients in whom, owing to delirium, this could not be noted before immersion, became quite tranquil in the bath, and the observation was easily made. In this way, I used it in seven very severe cases in the summer and autumn of 1883, in Bangalore, at the infantry station hospital; of these, six recovered. In the case which died, it was only used twice, at a time when the bowel, as indicated by the stools, was in a gangrenous condition, and when the case was considered hopeless. When we look at the very early period at which cerebral and intestinal lesions appear in severe cases of Indian enteric, it becomes the

more imperative that the bath should be early resorted to, and systematically continued, morning and afternoon, as long as the temperature runs high; a marked fall of two or more degrees will usually occur three-quarters of an hour in a bath of about 90° F. In other respects, improvement is noted; the dry parched lips become moist and softer, delirium disappears, and the intellect clears up. I have no doubt that if the bath-treatment, as laid down in most textbooks, or in the way I have briefly noted, were more frequently resorted to, under the careful personal supervision of the medical officer in charge of the case, the mortality of this fever would be very much reduced in India.—*Brit. Med. Jour.*, Nov. 28, 1885.

THE PHYSIOLOGY OF HEPATIC COLIC.—N. P. SIMANOWSKY, (*Zeit. Klin. Med.*, Band. V.), wishing to clear up the physiology of hepatic colic, has recently undertaken a series of experiments upon dogs. He first established a biliary fistula, and, afterward, submitted the gall-bladder to different forms of irritation. As a result of his experiments, the following conclusions were reached:

1. The introduction of electrodes or any other foreign body into the gall-bladder produces violent pain.

2. When the electrodes are introduced or withdrawn, pain, similar to that caused by spasmodic contraction of the walls of the gall-bladder is produced.

3. The pulsations of the heart are increased in frequency under the influence of feeble electric currents. They are diminished by strong currents, and the cardiac rhythm is disturbed.

4. When the electrical stimulation is maintained for a considerable period, the cardiac actively diminishes. Under the same conditions the same effect is observed with feeble currents.

5. Electrical excitation increases the frequency of respiration (twenty to seventy respirations per minute). Strong excitation causes a momentary arrest of respirations.

6. The rectal temperature is elevated during excitation. There is no relation between this effect and violent movements on the part of the animal.

7. The temperature of the skin, taken at symmetrical points presents great variation under such excitation of the gall-bladder, being frequently elevated on one side and depressed on the other.

8. At the termination of such experiments, paresis of the posterior limbs was not infrequently observed. In some cases this condition persisted for several months.

9. Excitation of the gall-bladder frequently produced vomiting.

10. Excitation always produced increased blood-pressure, provided that the vagus had not been previously divided in the neck.—*Revue des Sciences Médicale*, July, 1885.

STRYCHNIA IN NERVOUS DISEASE.—In an article on this subject, in the *American Journal of the Medical Sciences*, October, 1885, DR. LANDON CARTER GRAY says: In five cases of progressive muscular atrophy I have given strychnia in doses up to gr. $\frac{1}{25}$. In all of them it acted as a remarkable stimulant, inducing such a sense of well-being that most of them have felt the need of it when it was discontinued, so that several take it continuously. In one very marked and typical case $\frac{1}{30}$ to $\frac{1}{25}$ of a grain has been taken daily three times for nearly two years. In none, however, was there any real improvement. Dr. S. Weir Mitchell, in his work on the treatment of neurasthenia by rest and forced feeding, recommends strychnia in doses of gr. $\frac{1}{30}$ at the time when patients are to be taken out of bed. I have pursued this plan in a number of such cases, and have satisfied myself that it is invaluable. But, singular to say, three cases of neurasthenia, which were treated in the general way, bore strychnia in gr. $\frac{1}{30}$ doses badly, severe toxic symptoms being induced in two. I have never felt it safe to exceed gr. $\frac{1}{20}$. Indeed, even when giving $\frac{1}{50}$ or $\frac{1}{40}$ of grain, I have always been on my guard, because I have on several occasions found the action of the medicine to be cumulative. It was notably so in the case of transverse myelitis with contracture. Nor have I ever been able to dispossess myself of scepticism as to the benefits to be obtained from a toxic dose, which may possibly vary in amount with each individual and each disease; and I have therefore refrained from increasing the dose beyond the first toxic symptoms.

EXTENSOR TENDONS OF THE FINGERS.—Besides some interesting researches on the synovial sheaths under the posterior annular ligament, Dr. Wenzel Gruber has recently described in Virchow's *Archiv* a tensor ligamenti carpi dorsalis, not hitherto observed. It existed in both fore-arms of a woman. It was short and fusiform, and arose from the ridge of the ulna between the extensor ossis metacarpi and the extensor secundi internodii pollicis, lying between them, above and between the former muscle and the short extensor of the thumb lower down. It ended in a short ribbon-like tendon, which was mostly lost in the posterior annular ligament, but some of the fibres were attached to the bony ridges which bordered the broad grove for the radial extensors. Dr. Gruber has also described a case where a peculiar arrangement of the extensors of the fingers existed. He had previously noted that an extensor digiti quinti et quarti proprius existed in about 10 per cent. of several hundred subjects under his inspection, though often unilateral. In this case, both the special muscle existed and also a distinct division of the muscular part of the common extensor, supplying a tendinous slip to the ring-finger in the left hand and another to the little finger. As those fingers also received a tendon each from the main part of the common extensor, they were unusually well supplied. The supernumerary extensor, springing from the common extensor, ran in a special sheath under the posterior annular ligament. In the language of the English dissector, there were in this case two tendons supplied to the ring and little fingers from the common extensor, whilst the extensor minimi digiti divided into two tendons, one going to the ring, the other to the little finger. A tendinous band ran from the first metacarpal bone to the back of the capsule of the metacarpo-phalangeal joint of the index-finger—*British Medical Journal*, Nov. 25, 1885.

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THE EDITOR OF THIS JOURNAL would be glad to receive any items of general interest in regard to local events, or matters that it is desirable to call to the attention of the profession. Letters written for publication or containing items of information should be accompanied by the writer's full name and address, although not necessarily to be published. All communications in regard to editorial work should be addressed to the Editor.

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THE DURATION OF THE ACTION OF MEDICINES.

"Does our present knowledge support the view that medicines act during definite periods; that is, can we rely on a given dose of a drug influencing the organ in which it acts for the same space of time in different individuals, or on the same individual at different times?" Such is the question asked by DR. D. J. LEECH in a most interesting introduction to a discussion before the recent annual meeting of the British Medical Association. The question is not only highly interesting in itself, but far-reaching, and one to which but too little attention has been given. It directly involves another question, Is not the frequency with which doses of medicine are given, in a great many cases, simply a matter of routine? "At the present time one of the leading objects of the therapeutist is to alter the functions of certain tissues or organs, temporarily or permanently. Sometimes we aim at restoring the normal functions of parts, sometimes we desire to modify functions for a time, and thus neutralize evils arising from a disordered condition of other parts on which we cannot act. But whether our purpose be to restore or modify, we know it can rarely be attained except by acting on the tissues or organs we wish to influence, with a certain degree of continuity; and we should endeavor, therefore, to repeat our medicines in such doses, and at such intervals, that the continuity of action we desire may be attained."

Our knowledge of the time during which a drug will act on an organ, though it should be the basis of our intervals for administration, is unfortunately but too limited; and as regards the causes which lead to variations in the duration we may be said to know almost nothing. There are so many factors in the case, and so many causes of error, that the difficulties in the way of exact determination are very great. The time at which absorption begins must vary in given cases, and when medicines are given *per os* no action can take place until absorption begins. Some preparations are less soluble in the stomach than others, even of the same drug. Or a very slight alteration in the condition of the stomach may cause delay in this respect. When the action of a drug is unduly delayed we naturally attribute it to delayed absorption. Again, the action may be delayed by insusceptibility to the drug in a given case, or diminished susceptibility of the organ in the same case at different times. Still further, "when drugs act in a similar manner on the same tissues, the relative periods of their activity may vary distinctly." This is shown by comparing the duration of the action of ether and alcohol, the two drugs affecting the same tissues and functions, and the symptoms of intoxication produced by each being the same.

And here it may be pointed out that in spite of our want of knowledge on this subject, we have learned by experience that there is a relative uniformity in the period of activity of many drugs; while ammonia acts quickly on the heart, its effects are evanescent; but while the tonic effects of digitalis appear but slowly, they last for a long time. "Of our diuretics, purgatives, and emetics, some act for a shorter, some for longer, period. The diuretic effects of caffein, for example, soon cease when we stop the administration of this drug, whilst the increased flow of urine which is produced by digitalis usually goes on for a long time, sometimes for several days, after the medicine has been discontinued. The difference in the period during which these two drugs act, may of course depend on the fact that they exert their influence on different tissues. Caffein, it has been suggested, stimulates the tubular epithelium, whilst digitalis causes diuresis through its effects on the vascular system. But the relative difference in the duration of action must certainly be dependent on the fact that each influences the tissues it affects for a more or less definite period of time." In this connection may be mentioned the resemblance between the phenomena produced by amyl nitrite and the nitrites and nitro-glycerine, as pointed out by Brunton, Cash, Murrell, Hay and others. Though this resemblance is very strong, the duration of the effects of amyl nitrite is very much shorter than in case of the other drugs; and Hay has shown that the influence of sodium nitrite on arterial tension is much more persistent than that of nitro-glycerine.

Dr. Leech's experiments on the duration of the action of drugs were limited to the effects of a very few drugs on arterial tension; the drugs being amyl nitrite, ethyl nitrite, nitro-glycerine, sodium nitrite, potassium nitrite, and helleborein. The phenomena produced by the nitrites and nitro-glycerine vary considerably in different individuals. While some persons can take five drops of a 1 per cent. solution of nitro-glycerine, or even more, without unpleasant effects, others are disagreeably affected by one drop. The persons selected for experimentation were of different susceptibility, and normal tracings were taken previous to the administration of the drugs. The subjects were all free from cardiac diseases, and the observations were made, so far as possible, under similar conditions as to time of day, food, etc. With amyl nitrite the influence on the pulse commences immediately after the inhalation, and the tension is reduced to its lowest point in from thirty to sixty seconds; "the blood-pressure then rises again, and usually attains its ordinary height in a minute and a half," as Murrell states. In some cases, however, from two to four minutes elapse before the pressure rises. In quite a number of cases, also, the tension may again fall after the first apparent recovery, and the return to the normal does not take place for eight or ten minutes. In still other cases there may be a slight fall after the second return to the normal, and the effects will continue for twenty minutes or half an hour. Alternations of this kind, says Dr. Leech, occur during the action of all the nitrites, and he refers to them as oscillations. In one case the effect of amyl nitrite was traceable for more than an hour. While, therefore, the effects of this drug vary considerably, "its very marked tension-reducing influence never lasts more than one and a half to two minutes, but a slight depression of blood-pressure is commonly present for a longer period, and not only does the duration of the influence of the amyl-nitrate differ in different people, but it is also variable in the same individual at different times."

With nitrite of ethyl the tension is depressed for a much longer time than with nitrite of amyl, and in quite a different manner. "A dose of 25 minims of a 25 per cent. solution, in alcohol, causes, in those susceptible to the influence of the nitrites, a slight fall in tension within a few minutes; but, as a rule, the greatest effect is not noticed until from six to fifteen minutes have elapsed. For twenty or thirty minutes longer, the tension continues low. Then a return towards the normal takes place, usually with oscillations. I have traced the effect of this nitrite for two hours. Where the dose is small, or in those not susceptible to the action of the nitrites, hardly any fall is seen during the first half-hour, and the normal tension is regained in about an hour and a half." From some experiments made with spirit of nitrous ether, Dr. Leech believes that seven or eight minims of pure ethyl nitrite will "usually keep the tension depressed for at least forty-five minutes, in some people for rather more than an hour;" and he thinks that the effect on the circulation often persists during the whole of the second hour. But while the depression of tension is more prolonged than in the case of amyl nitrite, it is not so great. Nitro-glycerine not only acts more powerfully and quickly than ethyl nitrite, but its effects are more prolonged. "A single drop of a 1 per cent. solution causes a fall in the pulse-tension in one and a half to two minutes, and in three or four minutes the fall is well-marked." The pressure continues low for about ten minutes, or a little longer, then gradually rises to almost normal in about half an hour. But on account of the oscillations the normal is not perfectly reached until the lapse of an hour or an hour and a half. As already stated, however, this drug affects some persons more powerfully and for a longer time than others. With sodium and potassium nitrite—the alkaline nitrites—while the effect is not so quick as with nitro-glycerine, the duration of the effect seems to be more prolonged. Dr. Leech estimates that "whilst the average duration of five grains of an alkaline nitrite in ordinary individuals is about five and a half hours, the effect of three grains does not last so long by half an hour."

While it is seen by the preceding sketch of Dr. Leech's paper, which is to be found in the *British Medical Journal*, of Nov. 28, that but a very limited number of drugs were experimented upon, and the the experiments limited to their effects on arterial tension, we must regard the contribution as one of great value, and as in part opening the way to very important work. It would seem, too, that the question of the duration of the action of drugs must be primarily included under the department of pharmacology, and thence be extended to the duration of the action of medicines in disease. And certainly, while the field is practically boundless, there are mines of wealth at every turn.

AMERICAN MEDICAL ASSOCIATION; ITS NEXT ANNUAL MEETING.

As the next Annual Meeting of this important National organization will commence on the morning of the first Tuesday in May, 1886, in St. Louis, Missouri, only four months remain for those who are contemplating the presentation of papers, reports, or

any matter of interest, to complete their preparation. To ensure a profitable meeting, and especially one of high scientific interest, it is necessary that preparations should be commenced early and a systematic programme of work arranged for each Section. The ordinary routine of miscellaneous business, with the addresses of the Chairmen of Sections, usually fully occupy the general morning sessions during the four days occupied by the Annual Meeting. Indeed, unless these officers, in the preparation of their annual addresses, adhere more closely than usual to the requirements of the by-laws, it will be impossible to crowd them all into the time allotted to the general sessions, and, as on former occasions, some will be read only by their titles and referred, a practice which should not be encouraged.

The by-laws require from the Chairman of each Section an Address on the discoveries and improvements made in the branches included in his Section, during the preceding year, and that not more than *forty minutes* shall be consumed in its delivery. Two objections have been made by former Chairmen of Sections against a literal compliance with the requirements of the rule. The first is that the actual discoveries and improvements made in most of the branches of medical science, in any one year, are not sufficient to constitute the subject of an address; and the second, that all such discoveries are at once published in the medical periodicals, and consequently their re-statement in a public address would be only repeating what is already familiar to the profession. A closer examination will show that neither of these objections are well founded.

A careful student of current medical literature cannot fail to discover, during every year, items of progress, proposed changes, and suggestions supposed by their authors to be new, in some parts of the field covered by any one of the Sections, sufficient to constitute the basis of a most interesting discourse of thirty or forty minutes. Again, while it may be true that every new idea or supposed discovery, and every suggested improvement, finds its way to the profession through the columns of the medical periodicals, it is not true that every member of the profession takes all these periodicals or finds time in the midst of the practical duties of the profession to examine critically those he does take. Consequently some items of importance escape his attention, and some that he does observe are of such a nature that he has not time to examine the evidences on which their claims to importance rest. If the Chairman of a Section should simply cull from the pages of the medical periodicals a list of the alleged discoveries and items of advancement, we admit that his discourse would possess comparatively little interest. But it should be his object not only to present such a list, but to critically examine and point out the evidences on which each item rests for its claims to our confidence. He should show what items are really new and what are merely old ideas or modes of practice, clothed in the novel phraseology of a new theory. He should also critically examine the methods of investigation by which alleged facts or conclusions have been reached, showing defects where such exist, and suggesting remedies for them. A series of such addresses, each kept rigidly within the limits of time prescribed by the by-law, delivered by the Chairmen of the Sections before the members of all the Sections in the general sessions, would afford not only a most interesting and profitable annual review of the various departments of medicine, but their subsequent publication in THE ASSOCIATION JOURNAL would bring the same to the attention of the whole membership and exert an important influence in promoting better methods of investigation and avoiding conclusions based on only a partial observation of the facts.

Perhaps the most important part of the work of preparation for the next Annual Meeting, however, is that relating to the programme for each of the Sections. If this is left entirely to the voluntary offering of papers, experience has shown that while some Sections will have more than there will be time to hear, others will be comparatively unoccupied. To avoid this, the Chairman and Secretary of each Section should invite a sufficient number of thoroughly competent parties to prepare contributions on important topics, to secure at least one or two leading papers for each of the three sessions of the Section, and one or two equally well-qualified members to open the discussion of each paper. Having secured this much, they can safely trust to voluntary contributions for filling up all the rest of the time profitably. If this part of the work has not yet been attended to, the officers of the Section should lose no more time before engaging earnestly in the work before them, remembering that the best answer to all those who have been indulging in depreciative remarks in regard to the Association, is a meeting in St. Louis characterized by earnest, thorough and important scientific work in every Section. To facilitate the correspondence, we have placed under the head of "Association Items," the names and address of the general officers of the Association and of the several Sections.

SOCIETY PROCEEDINGS.

AMERICAN PUBLIC HEALTH ASSOCIATION.

Thirteenth Annual Meeting, held at Washington, D. C., December 8, 9 and 10, 1885.

(*Continued from page 714, Vol. V.*)

WEDNESDAY, DECEMBER 9—SECOND DAY.

AFTERNOON SESSION.

HON. ERASTUS BROOKS IN THE CHAIR.

DR. GRANVILLE P. CONN, of New Hampshire, read the

REPORT OF THE COMMITTEE ON STATE BOARDS OF HEALTH.

The report concludes as follows:

First. That it is the judgment of the Committee that in carrying out the object of their creation it is necessary to have a conference of delegates from State Boards of Health at least once a year for the purpose of consultation and to promote unity of action on matters essential to public health, the prevention of epidemics and the most efficient means of instructing the people in sanitation.

Second. The Committee would suggest that the most suitable occasion for holding this conference would be during the annual meeting of the American Public Health Association, and that our President and Secretary arrange the time of the meeting in connection with the Executive Committee of the American Public Health Association so as best to promote the interests of the Association and the conference.

Third. Any conclusions of this conference that are of interest to the public shall be reported by the Secretary to the American Public Health Association, through the standing Committee on State Boards of Health.

REPORTS OF STATE BOARDS OF HEALTH.

DR. J. N. MCCORMACK, Secretary of the State Board of Health of Kentucky, submitted a brief report of the operations of that Board for the past year, and indicated an increased interest in health on the part of both the profession and people of that State. His Board attached the utmost importance to the recently enacted law providing for instruction in regard to the plain laws of health in all public schools, but has not been successful in finding any text-book suited to this purpose—most of those now in existence being only treatises on anatomy and physiology, with deficient, crude or misleading instruction on the important subject of the prevention of disease. He referred to the recently published account of the investigation of the fever endemic in Louisville, and stated that no practical result had so far followed except the worthless one to substitute tube wells seventy-five feet deep for those now in use.

In the discussion that ensued, the various States were called. DR. KENNEDY, of Iowa, said that the law of his State gave the Board almost absolute power to vaccinate everybody under 21 years of age.

DR. GERRISCH, of Portland, Maine, reported how the Board of Health of his State had been organized last year, but three votes out of 181 in the Legislature being opposed to it. The sum of $3,000 was appropriated for it the first year. He thinks $5,000 will hereafter be appropriated annually, as well as $5,000 additional to be used as an epidemic fund. But two cases of small-pox have occurred in his State since the outbreak of the disease in Montreal.

DR. HENRY B. BAKER, of Michigan, added that the Board of his State and the people have been unusually active during the past year in taking all the necessary precautionary measures to prevent small-pox and other contagious diseases.

DR. COX, of Missouri, said the Board of his State had all things well under headway to avert any epidemic of small-pox, or any other epidemic disease. The water supply was well arranged, and wholesome water was almost universally used throughout Missouri.

DR. G. P. CONN supplemented his paper by the remark that the work in his State Board had been similar to that of other States. The people there demand protection through the State Board of Health. But one family, coming direct from Montreal, has had small-pox in his State for many months, and that occurred in Manchester, although 1,000 people had come to Manchester from an infected district in and about Montreal.

DR. EZRA M. HUNT, of New Jersey, said his Board had been well sustained by the people. The report on tenement house inspection and inspection of schools has been put in book form and was favorably received.

HON. ERASTUS BROOKS, of New York, said that their Board was a very efficient and thorough organization. In 1,000 towns, 240 villages and twenty-four cities there are local boards of health. In a number of the cities they are distinct and independent organizations, and independent of the general law. They are trusted to establish their own local board, and at least one competent person is selected to take care of the interests of the locality. The appropriation for the State Board of Health was $20,000 for the past year. The Secretary receives $3,500 a year, and he is the Board's executive officer. The city of Brooklyn expends about 75,000 a year for sanitary purposes.

DR. THOS. F. WOOD, of North Carolina, stated that the Board of Health of his State had been reorganized since the last meeting of the Association, the legislature of January, 1884, appropriated $2,000 for the Board, and $2,500 as contingent fund to experiment on drinking water, etc. Of ninety-four counties in North Carolina, fifty counties have organized local boards, and a plan for registering vital statistics.

DR. R. HARVEY REED, of Ohio, thinks that a State Board of Health will ultimately be established in Ohio. In his State there have been divisions upon this subject, even in the State Medical Society. Some bills presented in the legislature have been too short and others too long. A committee is now at work

from that Society preparing a bill to present to the Legislature. Another thing to contend with is that many quacks are in that State. They work against the organization of a State Board. These quacks are very numerous, being driven there from adjacent and other States of the Union.

Dr. Ashman, of Cleveland, Ohio, said there were many local boards of health organized throughout Ohio; $25,000 to $28,000 were expended yearly at Cleveland by the local board. He thinks the prospect is not very good at present for the organization of a State Board.

Dr. Fisher, of Rhode Island, said that in his State, advancement is being made in public sentiment and in the practical performance of measures taken for the care of the public health, although personal liberty is what the people of his State dote upon; taking the view that a man should not be deprived of his liberty, and should live in as much filth as he likes. Vaccination has been thorough in at least two-thirds of the towns throughout his State since the epidemic of small-pox has broken out in Montreal. Rhode Island requires that pupils before entering school mnst be vaccinated; hence the State is well protected against small-pox.

Dr. G. B. Thornton, of Memphis, said the State Board of Tennessee had been very materially strengthened at the last legislature, by two acts, by the first of which $10,000 a year and $5,000 are to be used exclusively for quarantine purposes. The second provides for the creation of county health officers. Such an officer must be a physician, and he reports to the Secretary of the State Board any case of cholera or any other infectious or contagious disease.

Dr. Swearingen, of Texas, said that in Mexico there were ten cases of small-pox to one case in Canada, yet but few cases ever occur in Texas, and no epidemic of any magnitude has ever broken out in Texas. This is on account of the inspection service at El Paso.

Dr. J. G. Cabell, of Richmond, Virginia, stated that about fourteen years ago the Virginia State Board of Health was organized upon the basis that it should be at no expense to the State. The Board consists of seven members. No child in Richmond is allowed to attend school unless it has been successfully vaccinated.

Dr. James E. Reeves, of Wheeling, briefly stated that West Virginia owed this Association much for its State Board of Health. In 1881 there was not a health board worth the name in the entire State, while now, a board is organized in all the counties and municipalities throughout the State.

Dr. J. T. Reeve, of Appleton, Wis., said that some progress has been made in his State during the past year, stimulated by the anticipated approach of cholera. $30,000 was appropriated by the last legislature, and $15,000 for each of two years before it meets again, as a contingent fund for cholera or other epidemics, although the State has been free from epidemics of all kinds. Small-pox has visited the State but two or three times during the past year, but it was confined to a single case in each instance. The two cases came direct from Montreal, and prompt measures stamped it out. From the last two cases there arose, in all, eighteen cases, with a result of five deaths, which occurred in a town of 10,000 people.

Dr. T. S. Covernton, of Toronto, Canada, said that out of 660 local boards of health that had been established in Ontario, 520 had sanitary inspectors. Disposal of sewage is being properly attended to throughout his Province. $3,000 a month for the past four months has been expended to stamp out small-pox in the Province.

Dr. Wm. H. Hingston, of Montreal, said that 250 boards have been organized during the past two months in the Province of Quebec.

Evening Session.

The President in the Chair.

Dr. Benjamin Lee, of Philadelphia, read a paper entitled

THE DEBIT AND CREDIT ACCOUNT OF THE PLYMOUTH EPIDEMIC,

on the Credit side being placed the "State Board of Health and Vital Statistics of the Commonwealth of Pennsylvania;" and the following on the Debit side: Cost of illness of 1153 cases, $59,100.17; expenses of hospital, $8,000; loss of earnings during sickness, $30,020.08; capital represented by loss of income, of 114 persons who died, at three per cent. *per annum*, $613,984; total, $711,104.25.

The total number of sick was 1153, the population being estimated at about 8,000. Of the number attacked with the disease 114 died. The proportion of deaths in the hospital was about three per cent., which is unsurpassed by the record of any other hospital in the world. The expenses incurred by the epidemic are estimated at $67,100.17, of which amount $8,000 was consumed in running the hospital. Of those who were ill with the disease and recovered the loss of earnings during illness was found to be $30,020.08. Thus the total cost of the epidemic is reckoned at $97,120.28. By the 114 deaths a monthly earning of $1,534.96 ceased, showing a loss of $18,419.52 per year in incomes. The State Legislature contributed $5,000 for the maintenance of the hospital. The State of Pennsylvania therefore disbursed directly from its treasury for the relief of the sufferers from this single outbreak of preventable disease, precisely the same amount of money that the Legislature now allows for the expenses of the Board which is to have the supervision of the health interests of her people, for an entire year. And this brings us to the credit side of the Plymouth epidemic. But for that sad calamity the efforts of physicians and philanthropists to obtain the establishment of this essential department of every civilized State would have been as unavailing as at any time during the past ten years. This practical demonstration was an argument which the dullest could appreciate, the most bigoted could not withstand. And so, out of the agonies of Plymouth the State Board of Health of Pennsylvania was born.

Dr. E. M. Hartwell, of the Johns Hopkins University, read a paper on

THE GERMAN SYSTEM OF PHYSICAL EDUCATION.

He prefaced his paper by several well-chosen remarks

upon sports, gymnastics, physical training, etc., in Germany. Not until 1860 was physical training made obligatory in the public schools in Germany, and three or four years ago in Prussia it was also made obligatory for girls. It is obligatory for the boys in the Prussian schools to train two hours every day. They begin at the age of 6 and continue it until they are 19 or 20 years of age. The system is better organized in cities than in the country. In Berlin in 1881 there were 15,998 pupils in the high schools, of which, in round numbers, 11,000 were boys and 4,000 were girls. Having described the origin of "turning" or gymnastics among the Prussians and the consequent Turnvereins, so numerous throughout Germany, he turned to the subject in its present national aspect. He said that in the German schools, both for boys and girls, gymnastics are compulsory, and in 1879, out of all the scholars in the classical and high schools only ten per cent. were excused from the two hours' weekly class of physical gymnastics, and those only on the certificate of a physician stating that it would be injurious for them to attend the class. There are in Berlin ninety-eight gymnasiums, and in 1880 and 1881, of the $1,760,000 appropriated by the city for educational use, one-thirtieth of that amount was expended for the teaching of gymnastics.

There are a thousand teachers in Berlin who are capable of giving gymnastic training. They, for the most part, do so in connection with their other classes, but they must first go through a regular normal school of gymnastics. In 1885 there was appropriated for the Royal Normal School for Gymnastic Teachers, established at Berlin in 1851, something over $21,000, and here teachers from all over the German Empire come to learn, so that they may go back home and teach their pupils. Details of officers from the army become pupils so that they may teach the soldiers, and the effect of this training is seen in the superiority of the German soldiers. They can get over a picket fence fifteen feet high without ladders, and without catching any of their clothing or accoutrements. The Germans introduced gymnastic exercise into America, and we could not do better than to embrace their system, adapting it, of course, to our institutions, thus enabling our youth to bear the brute strain of study.

DR. O. W. WIGHT, Health Officer of Detroit, read a paper entitled

EXPERIMENTS IN DISINFECTING SEWERS.

Detroit has no regular sewer system. The city is traversed by more than a score of great conduits, from four to eight feet in diameter, from two to seven miles in length. Most of them empty into the river submerged; consequently the dead water sets back in them from 1,000 to 5,000 feet. At their lower ends they are ordinarily choked with sediment, which is sometimes washed partly out in great storms. The submerged mouths are pretty effectually trapped, making these huge conduits receptacles for vast volumes of sewer-gas. A rapid increase of water in the big sewers, during a summer shower, has sometimes caused such internal pressure of the confined air as to throw off covers from manholes in the streets. The effect on traps in the drains of houses can be easily imagined. The lateral sewers are constructed of common porous brick, thrown together by cheap workmen, and are all twenty inches in diameter, whether designed to drain five acres or fifty acres. Sewer empties into sewer, frequently at right angles, sometimes at the top, sometimes at the bottom. Now and then a large sewer is connected with a smaller one. Here and there depressions allow the sewage to become ponded and undergo putrefactive decomposition. In places, the constructors have evidently expected water to run up-hill, in obedience to the wishes of a favored contractor. Recently, more than twenty large saw-logs were extracted from a single sewer, fifty or sixty rods back from the river. More than ten thousand vaults are connected with the sewers, for the most part by means of eight-inch clay or cement pipe, laid without tight joints or traps. No wonder Detroit has annually more than a thousand cases of diphtheria. Doctors there used to tell the people that they had the best sewer system in the world and that their city was the healthiest in the United States.

Notwithstanding the fact that two medical men descended into one of the great sewers, remained there, to use their own language, "twenty-four consecutive minutes," and not only came out alive, but announced to an expectant public that the air therein was "chemically pure," I determined to disinfect the 200 miles of sewers and see what would come of it. The work of disinfection was begun with copperas. There are in the streets and alleys of Detroit about 5,000 receiving-basins communicating with the sewers. Into each of these were thrown a dozen pounds of copperas. To each school-house, police station, fire-engine house, and to every other public building, a barrel of copperas was sent, at the city's expense. We used 75,000 pounds of copperas, purchased by the carload, at $13 a ton. At the same time I made an arrangement whereby citizens could purchase, of a wholesale dealer, copperas for one cent a pound. As nearly as I could calculate, the citizens purchased and used about 200,000 pounds during the season. The direct and indirect effect on the sewers, from the use of nearly 140 tons of copperas, was to disinfect the sewage for several successive weeks. The citizens found so much comfort from the disinfection of their foul-smelling drains that, with many of them, the use of copperas has become habitual. It is very true that copperas, or any other disinfectant, is not a perfect substitute for good plumbing and proper drainage, but it does something toward remedying a prevalent sanitary evil.

To destroy the poison in the confined foul air of sewers; also to kill the fungoid growths on their inner walls, a gaseous disinfectant is necessary. I therefore determined to fumigate the sewers with burning sulphur. Three tons of roll brimstone were purchased, at a total expense of $150. Fifty galvanized iron pails, called steamboat pails, were purchased, at seventy-five cents each. A sufficient quantity of light chain, and five dozen spikes, with hooks in the place of heads, were also purchased. Holes three-quarters of an inch in diameter were punched in the iron pails

about two-thirds of the way up from the bottom, two inches apart all the way around. Procuring from the Board of Public Works the services of two men experienced as to the location and construction of the sewers, loading up a wagon with a barrel of sulphur, a nest of pails, perforated as aforesaid, a quantity of chain, a pair of nippers, a hammer, pick, shovel, crowbar, shavings, bundles of short wood faggots, and a barrel of charcoal, I started out amid the jeers of a disbelieving crowd of city officials.

With shovel, pick and crowbar, the cover of a manhole was lifted when we reached the place of our destination. A spike, with a hook on the end of it, was driven into the wall of the brick well, a foot or two below the top; the chain was fastened to the bail of an iron pail and the same let down into the sewer, so as to swing just clear of the sewage running in the bottom. The chain was then hooked on the spike already driven. The nippers served to cut off the chain above the hook. The pail was then drawn up, leaving the adjusted chain attached to its fastening, Into the pail were put, first, a handful of lighted shavings, then on the burning shavings some faggots of wood, and lastly, on the igniting wood a small scoopful of charcoal. Over the pail was placed a sheet-iron cover, in the centre of which was inserted a single length of conical stovepipe, eight inches in diameter at the bottom and four at the top. The air rushed through the holes punched in the pail with a good draught, hastening combustion and thereby saving time. As soon as the charcoal was thoroughly aglow, the cover was removed, a dozen pounds of brimstone were thrown on the hot fire, and the pail, by means of its already adjusted and fastened chain, was quickly lowered into the sewer. It only remained to replace the cover of the manhole. We drove on to the next manhole, four or five hundred feet away. Removal of the cover revealed not only smoke, but also a strong odor of brimstone. Sulphurous acid gas traveled in the sewer as fast as we did on the road.

The work went steadily on, day after day, till a pail of burning brimstone had been suspended down each one of the 500 manholes in the city. The pails were taken up the next day following suspension, and not unfrequently, remnants of sulphur were found burning after twenty-four hours. Not a single pail missed fire. If ordinary means of igniting the brimstone had been used, there would have been many failures and much loss of time. The odor of burning brimstone demonstrated to many a citizen that his drains and waste-pipes were not securely trapped against sewer-gas. When the work was completed, the people were so convinced of its efficacy that the Board of Education resolved to have all the school buildings fumigated, in each of which, according to the size, were burned from thirty to eighty pounds of brimstone. There followed the copious use of copperas and sulphur a great abatement of diphtheria and an almost total cessation of scarlet fever.

Of course, a single experiment does not warrant us in predicating a relation of cause and effect. The whole expense for a single disinfection of the sewers with copperas and burning brimstone was less than $1,300. With the money left out of the appropriation, we have this year repeated the experiment. Again we have treated the sewers of the city to 60,000 pounds of copperas and three tons of burning sulphur. The Board of Education has adopted the plan of fumigating the school buildings twice a year. The second experiment was followed, for a time, by an almost complete cessation of diphtheria. Again I say that disinfection, however thorough, is only a temporary relief from a dangerous evil, and cannot be relied on as a substitute for an unsound sewer system and radically defective house-drainage. The expense is not great, and it may be used as a more or less valuable instrumentality in a season of epidemic peril.

Dr. Rohé hoped that Dr. Wight would disinfect and fumigate the sewers of Detroit in winter and let the Association hear the result of his experiments.

Mr. C. C. Denstoe, of Cleveland, Ohio, said that plumbing and sewerage ought to come under the direction of Boards of Health.

Thursday, December 10—Third Day.

Morning Session.

Hon. Erastus Brooks, First Vice-President, presiding.

The following were

elected members.

Drs. Andrew W. Imrie, Detroit; John W. Jones, Tarborough, N. C.; Frank L. Simm, Memphis; J. Howard Taylor, Philadelphia; Charles Farquhar, Olney, Md.; Carl H. Horsch; Dwight A. Richardson, Osceola, Ark; Thos. Taylor; Jas. T. Young; Z. T. Somers; P. Morgan, Jr., Washington, D. C.; Mr. Ed. J. Hannan, Washington, D. C.

The following resolution, offered by Mr. Henry Lomb at Wednesday's forenoon session, was adopted by the Executive Committee:

commission on workshops.

Resolved, That the American Public Health Association respectfully recommend to the Commissioner of Statistics and Labor the appointment of one or more commissions of experts whose duty it shall be to visit the principal factories and workshops in this country to examine them carefully with reference to the provisions made in them to ensure the safety and health of the employés, and to report on the same, with recommendations.

Dr. John H. Rauch, Secretary of the Illinois State Board of Health, then read a paper on

maritime quarantine from the st. lawrence to the rio grande.

After taking the necessary action to secure the best attainable sanitary condition of the territory under its immediate jurisdiction—as one of the most important preparations against an invasion and spread of Asiatic cholera—the Illinois State Board of Health, at its meeting in July, 1885, authorized me, as its Secretary and Executive Officer, to make an inspection of the various quarantine establishments along the Atlantic and Gulf coasts. The geographical position of Illinois, its commercial relations, and the

extent and character of its means of communication, make the administration of maritime quarantine with reference to the exclusion of exotic contagious and infectious diseases a matter of sufficient importance to induce the Board to secure all accessible information on this subject, the better to enable it to discharge its duty with reference to the protection of the lives and health of the citizens of the State.

The absence of an adequate National Health authority and legislation, and the fact that in such absence the maritime quarantines are controlled and administered by State authorities, resulting in diverse and sometimes conflicting regulations and requirements, and of necessity, in a tendency to limit precautions to their own individual interests, commercial as well as sanitary, throw upon interior States the responsibility of fully informing themselves of the strength or weakness of these outposts in order to know where to anticipate danger and how to make their own preparations to meet it. It is this information I have endeavored to secure in my inspection, and which is here presented. It is hardly necessary before this assemblage to say that we are by no means yet free from danger of an invasion of cholera simply because there is now a cessation of alarming reports from Europe. It must not be forgotten that the duration of a cholera invasion of Europe is not limited to two or three years. From the date of its first appearance in 1829–30, in Russia, to its final extinguishment in Italy, Austria and Germany, a period of seven years elapsed, during which, at one time or another, every one of the Continental countries was invaded, some of them more than once. Similarly in 1847 it again entered Russia at ten points, and before its final disappearance in the Levant in the winter of 1855–56 it traversed every part of the the Continent and invaded Great Britain. In its last pandemic spread it appeared first at Malta in 1865, continued to ravage various parts of Europe until 1869, when there was a complete remission, only to break out again in 1871, and finally disappear in 1873. With immigrants from every portion of Europe continuously arriving upon our shores, we can not be freed from this menace until every trace of the contagion in that country has vanished.

When this inspection was ordered it was believed that it might be productive of good in stimulating improvements, and in presenting more clearly the interest of distant communities in the administration of what is apt to be considered a purely local measure. This belief has been fully realized, and the results obtained have been well worth the labor and expense involved.

From the date of the earliest establishment of quarantine in this country down to the present time, its efficiency and the public interest in it have been fitful and spasmodic, depending on some pressing emergency. Small-pox from the slave trade, yellow fever from West Indian commerce, and typhus and small-pox by immigrants, led to the first quarantines, dating back to the close of the seventeenth century. From 1791 for several years, yellow fever furnished the impetus; then in 1832 the cholera was added; and from that time up to the fever summer of 1878 there was no general interest in the subject, although quarantine conventions were held and the question was discussed by physicians and sanitarians, the most notable effort in this line being that inaugurated by Dr. Wilson Jewell, of Philadelphia, who, in 1856, sought the establishment of "a uniform code of regulations, operating alike in all seaports and offering the least hindrance to an active commerce and with a humane regard for the health of the passengers and crews and the comfort of the sick on board of all vessels detained at quarantine stations." But notwithstanding the organization, in 1857, of a "Quarantine and Sanitary Convention" for this purpose, and which held annual sessions in 1858, 1859 and 1860, the control of quarantine has always remained under the jurisdiction of State and local authorities except during the brief period in which the National Board of Health exercised limited quarantine powers.

It is not proposed to discuss the necessity for National action on this subject. The National Conference of State Boards of Health and the American Public Health Association are both on record as to the importance and necessity of such action. But mention may here be made to the existing confusion, not alone in this country, but abroad, as to the present status of National quarantine legislation. Such sanitary measures as are now enforced by the Government are based upon authority derived from the Act of April 29th, 1878, to prevent the introduction of infectious or contagious diseases into the United States. But the late Secretary of State, Mr. Frelinghuysen, and the late Secretary of the Treasury, Mr. Folger, both decided that the Act in question, having been repealed by the Act of June 2d, 1879, could not be revived by the expiration of this latter Act. The point would have less practical importance if the authority which assumes to act under it can and will furnish the country the necessary protection in the present emergency. As practical sanitary executives we are less concerned just now as to who exercises the authority and by what right, than in the questions: Is the authority wisely exercised? Is it sufficient? May we rely upon it implicitly? If not, to what extent? And how can we remedy its deficiencies? It is by no means meant by this that it would not be better that there should be a properly organized National Health Department, acting under clear and undisputed legal authority, and supplied with funds adequate to its legitimate necessities. That the present status of National sanitary legislation and of the National sanitary executive is defective and unsatisfactory, is patent to every one.

The history of the recent attempts to control the disinfection of rags; the complication at the port of New York concerning consular bills of health; the strictures upon the inspection service maintained along the coast; the friction between the Canadian health authorities and our own in the matter of inspections on the Canadian frontier; the complaints of various Boards of Health that they are directed to look to the associated press for information and warning concerning threatened danger from abroad to their ports and territory; and many other similar

matters, point to the necessity of a well considered and radical revision of existing sanitary legislation. No sanitarian will, I presume, question the danger of communicating pestilential diseases by infected linen and rags. At the Fifth International Congress of Hygiene, at the Hague, in 1884, Ruijsh cited a mass of proof which is conclusive as to the numerous outbreaks of plague, small-pox, petechial typhus and Asiatic cholera caused by handling, sorting and carrying rags. In the absence of any national authority cargoes of such rags refused entry at certain ports have been received at others.

As to consular bills of health, want of direct and official information concerning the sanitary condition of foreign ports and other counts in the above summary, they are essential to the prevention of the introduction of foreign contagion.

Dr. Jos. Holt, of New Orleans, read a paper on

THE SANITARY PROTECTION OF NEW ORLEANS.

He spoke of the means which had not yet been taken by New Orleans for the sanitation of the city, but toward which he said the people were being educated by the Health Board and by the intelligent press. Already a plan was being prepared for the systematic and thorough sewerage of the city. Maritime sanitation had taken the place of quarantine along the coast. The theory of bacillic origination for the essential cause of diphtheria, consumption, small-pox and yellow fever has passed from the realm of uncertainty into a crystallized fact. Even in our religion, incantations and long-drawn prayers are no longer looked upon as disinfectants. We have tried these and have invariably been swamped. We are no longer fighting the devil and the devil's works, but a microscopic germ—a little leaven which, if not speedily eradicated, leaveneth the whole lump. Yellow fever and cholera are due to living organisms, and it is to the destruction of these that our efforts are directed. The surest prevention of a conflagration is to quench the first spark. The surest prevention of an epidemic is to act on the first suspicion of the presence of epidemic disease. We disinfect every ship coming from cholera or yellow fever regions, regardless of bills of health or the angry cry of trade mongers. Should you ask why does not the commerce of New Orleans sweep the circuit of the world? why it has not grown as other large American cities? I would answer in one compound word—yellow-fever.

Dr. Holt spoke at length upon the success of inoculation for yellow fever. It has been proved that the germ can be inoculated in the body of the unacclimated person, and that a mild form of yellow fever will be produced thereby. The persons who have been thus inoculated have been enabled to pass through most virulent epidemics unscathed. In concluding his paper, Dr. Holt said that the principal object of his visit to Washington was to present the following resolution to the Association to bring to the attention of Congress:

COMMISSION ON YELLOW FEVER.

Whereas, The question of immunity from yellow fever is so intimately associated with the social, industrial and commercial growth of Tennessee, the Southern Atlantic and the Gulf States of the Union, as to determine the destiny of Memphis, Charleston, Savannah, Pensacola, Mobile, New Orleans, and Galveston; and

Whereas, A large and accumulating mass of testimony that the power of protecting the unacclimated against yellow fever, has been discovered, and proven in the inoculation of the essential germ or cause of the disease by methods distinctly formulated and available; these aforesaid declarations and numerous instances cited in corroboration emanating from medical scientists in the biological departments in the highest institutions of learning in Mexico and Brazil, authorized by and bearing the endorsements of the respective Governments;

Resolved, That we, the representatives of the Boards of Health in the several States of this Union, and we, the officers and members of the American Public Health Association, regarding the question as preëminently a vital issue; as one in its assumptions true or false; and if true, of incalculable worth, surpassing the computation of many millions of dollars and to the saving of tens of thousands of lives of its own people; that we hereby petition and urge upon both branches of Congress now assembled, to appoint a commission for the purpose of making a complete investigation of and reporting after a thorough examination of the methods pursued, their effectiveness in protecting the unacclimated against yellow fever infection, together with all associated observations and experiments that may be ascertained.

Resolved, That in the aforesaid petition the commission shall be stated to consist of three persons, one of whom shall be of known ability and special attainment in biological research, particularly in the department of microscopic investigation and culture of the essential germ or organisms causative of the infectious or contagious diseases. The other two members of the commission shall be medical men of recognized ability based upon long and ample experience, competent to give expert consideration to all phases of the symptoms and course of yellow fever in any form wherein the phenomena of the disease may present itself, whether induced in the course of pestilential invasion or in purposely devised inoculation.

Resolved, That this commission aforesaid shall proceed at the earliest practicable moment to Rio de Janeiro as the first field of its labors. Having completed there its work, it shall proceed to Mexico, and if necessary in the accumulation of testimony, to Panama, Colon, and Havana.

Resolved, That the sum of $30,000, or so much thereof as may be actually required to pay the necessary and unavoidable traveling and other expenses and the salaries of the members of the Commission.

Resolved, That the sum of $5,000 shall be paid as a recompense to each member of the aforesaid Commission.

Dr. S. T. Armstrong, U. S. Marine Hospital Service, read a paper on

MARITIME SANITATION,

in which the subject was considered from the stand-

point of the sailor, the passenger, the cargo, the vessel, and the port. Attention was directed to the necessity of legislation for preliminary examination of seamen, before shipment, of a required minimum cubic space in the sleeping quarters of the crew, of inspection of passenger and emigrant vessels regarding health of passengers, crew, etc., by medical officers of the Treasury Department instead of Collectors of Customs.

Disinfection of cargoes and vessels from infected ports, both by shipmasters and by inspecting officers at the port of arrival. The sanitary condition of the port was only alluded to, as the author considered this the special province of the Association, and if ports were in a good sanitary condition but little danger may be anticipated from imported disease.

DISINFECTION OF RAGS.

The Philadelphia Board of Health asked the Association to pass resolutions that rags should not be admitted to this country until disinfected.

At 1 o'clock P. M. the Association adjourned to call upon the President at the White House, according to special arrangement.

At a meeting of the Executive Committee immediately after the adjournment of the morning session at 1:30 o'clock, it was decided that the next annual meeting of the Association should be held at Toronto, Ont.

(*To be concluded.*)

MEDICAL SOCIETY OF THE DISTRICT OF COLUMBIA.

Stated Meeting, December 9, 1885.

VICE-PRESIDENT W. H. TAYLOR, M. D., IN THE CHAIR.

DR. SWAN M. BURNETT presented a boy suffering from

TUBERCULAR DISEASE OF THE IRIS,

and gave a history of the case.

Harry Haskins, white, aged 13. Seen for the first time at the Central Dispensary, on May 22, 1885. At that time there was iritis of the R. E., accompanied by the usual symptoms of pain, injection, etc., and the use of atropine showed that adhesion had already taken place to the anterior capsule of the lens. There was also visible at the lower inner pripher of the anterior chamber a nodular tumor 2 mm. in length and 1 mm. in thickness and height. The tumor was of a light yellowish red. There was also a slight opacity of the cornea over this, and a leash of vessels running from the conjunctiva and passing over the surface of the cornea beyond the inner edge of the growth. There was simple perception of light in this eye. The left eye was at that time normal. There were hard, nodular, clearly circumscribed swellings at the upper outer angles of both orbits—apparently enlargements of the lachrymal glands.

In July, a small tumor exactly similar to the one in the R. E. made its appearance at the lower periphery of the L. E., and in the course of a week there was an eritis in this eye also. The active process in the R. E. had subsided, but the tumor remained unchanged or perhaps increased somewhat. The tumor in the L. gradually increased and in the course of a month or six weeks attained nearly the size it now is. The iritis subsided in the course of two or three weeks, but there was a slight renewal of inflammation in the R. E. a month ago, which subsided in a week. On September 29, when he presented himself, there was noted a small yellowish nodule at the outer lower papillary edge of the iris, and a month later a similar nodule at the upper edge of the papillary margin.

Soon after he was first seen, there was noted an enlargement of a post-auricular gland, and gradually since then other post-auricular and sub-maxillary glands on both sides have become implicated.

On inquiry, I learned that there is tuberculosis in the family. Under the idea of syphilis being at the bottom of the pathological state—though a careful examination failed to reveal any evidence of either the inherited or acquired form—he was placed on mercury and iodide of potash in small doses. The use of these remedies for several months, however, has failed to make any impression on the disease. I have seen one case of tubercular tumor of the choroid exhibited as a living specimen to this society three years ago, and there are certain points of resemblance in history and appearance in the two which make me almost certain that this case is one of tubercular deposit. The question is, if the eye had been removed when first seen, would self-infection have been forestalled. I fear that I shall have the opportunity of presenting, at some time in the near future, the morbid specimen in this case.

DR. C. E. HAGNER said he had examined the boy's lungs and found the right one healthy. There was a broncho-vesicular murmur at the top of the left lung together with some slight dulness of the same organ. He did not know whether enucleation would prevent further infection or not. He thought it would be well to put the patient under constitutional treatment for syphilis, as there was a possibility that the boy might be suffering from that disease. At any rate, mercury and potash in tonic doses could not do him any harm, even if tuberculosis and not syphilis was the disease.

DR. TAYLOR had also examined the boy's lungs, and found, he thought, bronchial respiration together with a deposit in the left lung.

DR. SMITH thought that every effort should be made to exclude syphilis, if possible.

DR. THOMPSON thought there was scarcely a possibility of syphilis in this case. It could scarcely be acquired, for the boy was too young, and besides, there was no evidence of such a thing. But even if this child should have inherited syphilis, these symptoms, occurring at this late date, cannot be repaired by mercury and potash given as specifics. The outcome of inherited syphilis in a boy of this age would be scrofula or tuberculosis. Dr. Thompson believed this child had tubercular disease, and that the best thing to do was to let the eye alone. The same questions that Dr. Burnett proposes arise when the patient is suffering from tubercular disease of a testi-

cle, a joint, or an important bone. It is not certain that the removal of any of these will prevent further infection. Even with carcinoma, which the best pathologists consider local in its origin, the removal of the tumor does not always prevent constitutional infection or even a local recurrence. He would not object to giving this patient small doses of mercury and potash, for they might have a tonic effect.

DR. BURNETT said that although he had not before stated it, as a matter of fact, the boy was put under constitutional treatment as soon as he came to the clinic. He took mercury and potash thrice daily for a long time. After the doctor had exhausted all the resources of pathology and therapeutics, he was driven to believe that the boy was suffering from tubercular disease.

DR. D. S. LAMB then presented the following specimens:

LIVER OF STILL-BORN INFANT SHOWING TWO TUMORS; a small one involving left margin, the other occupying a large part of right lobe. These tumors were yellowish white and firm, presenting a marked contrast to the darker and softer normal structure. Spleen was enlarged. Blood effused under scalp and also over right cerebral hemisphere; this hemorrhage was probably the cause of death. Lungs airless; remaining viscera normal. Tumors of the liver in the newborn are of the greatest rarity. The tumors in this case suggested sarcoma, but the microscopical examination has not yet been completed. Had this child lived for several months, the period of their origin would have been doubtful—possibly would have been considered as post natal.

SMALL INTESTINE AND MESENTERY OF AN INFANT BORN AT EIGHT MONTHS, WHICH LIVED TWO DAYS.

There was double hare-lip and cleft palate, and it was said that the infant was unable to take any nourishment. The intestines were normal, but mesenteric glands markedly enlarged. The possible relation of this condition to tabes mesenterica is an interesting question. It does not seem possible in this case that the glands could have been infected from the intestine. The subject of disease in the fœtus and new-born infants is of such obvious value that it need not be enlarged upon. It is very desirable that the investigations now being made in this direction should be continued.

A PORTION OF LUNG FROM A MONKEY SHOWING TUBERCULAR CAVITIES.

This was a young female, and the mate died of same disease about a week previously. It seems that not only do many monkeys in captivity die of this disease, but they die from a relatively small amount of disease.

DOUBLE PANOPHTHALMITIS FROM A KITTEN about a month old at death. The disease of a week or ten days duration. Killed with chloroform and eyes enucleated and placed in alcohol. There is a large exudation in the posterior chamber and opacity and staphyloma of the cornea.

NEW INSTRUMENTS.

A POST-NASAL SNARE APPLICATOR.

BY E. FLETCHER INGALS, M.D.

The post-nasal snare applicator, to which reference was made in THE JOURNAL of December 5, was designed to facilitate the application of a wire loop over tumors in the post-nasal space, and to retain the wire in position until it could be tightened. In using it a catheter is passed through the nose, the end being drawn out through the mouth. Through this are passed both ends of a wire about three feet long, which are brought out at the nostril. The applicator is then attached to the loop, and the catheter and wires are drawn through the nose, the wire loop being drawn back into the mouth. As the loop passes under the edge of the soft palate the blades of the applicator are opened, thus spreading out the loop over the tumor. The wire loop is then carried by the applicator directly to the base of the growth in the vault of the pharynx, where it is held while an assistant passes the ends of the wire, projecting from the nose, through the tube of a snare, which glides along the wires to the back part of the nares. The wires are then fixed to the snare, and by it the loop is drawn tight about the tumor. The sliding blades of the applicator are then loosened and the instrument disengaged by a slight movement. In the cut, B and D show the sliding blades which retain the wire C in the notches at D. A, is a cam, which tightens the sliding blades over the notch at D, and which, when turned sideways, allows the blades to be drawn back by the thumb pieces at B, thus releasing the wire at the notches D.

The instrument works perfectly, and fully accomplishes the object for which it was designed. It is especially useful when the tumor is large; a condition which sometimes makes it extremely difficult to apply the wire loop.

For small tumors it is not so essential, but it will be found to greatly facilitate the operation, and to relieve the patient of most of the discomfort incident to the introduction of the fingers behind the palate.

64 State St., Chicago, Dec. 12, 1885.

DOMESTIC CORRESPONDENCE

MALARIAL FEVER AND YELLOW FEVER.

Dear Sir:—In THE JOURNAL of December 5 is an article by Dr. de Mello, of Rio de Janeiro, which is designed to show the identity of yellow fever and acute malaria, and which coincides with the ideas I have always entertained in reference to that subject.

I was practicing medicine, from 1839 to 1846, in-

clusive, at the Grand Rapids of the Maumee, in Ohio. During the first three or four years of my residence there the Wabash and Erie Canal was being made. The termini were the Maumee bay in Ohio, and Evansville in the southwestern corner of Indiana, making it one of the longest canals in the world. I am not certain whether a boat ever went through the whole length of this canal. The Indiana part of this canal was abandoned a few years ago, and that portion from Terre Haute to Evansville was never used. While they were digging the canal in Ohio, nearly all of which I saw, the Maumee Valley got a reputation (and founded on fact) for being one of the most malarious districts in any Northern State, almost vieing with New Orleans. A ghastly joke I recollect about Toledo: A man inquired the way to Monroe, was told to take the most travelled road, and was brought up at the graveyard. Indeed, one summer they were obliged to suspend the work on account of sickness—mostly cases of malarial fever—and many of the pernicious kind. Probably it was not so bad as the Panama railway, where, it is said, every tie represents a death, but it was bad enough, as I personally knew after I had been in the country two months. In my own case, a few of the results were a spleen about as big as my head, anasarca, and a skin the color of a ripe pumpkin.

These sequlæ *might* not have been so bad, had we then known how to treat such cases as well as we now do. That is to say, we did not know enough to give quinine in sufficient quantity. At that time, the usual treatment was mercurials (principally calomel), tartar emetic, drastic cathartics, and a minimum quantity of quinine—and this must not be taken till the fever had subsided. Not often was more than gr. ij given in one dose—generally gr. x in six doses. It is about forty-five years since I repudiated the absurd notion of waiting for the fever to intermit before quinine could be safely administered. I got a *pointer*, as the boys say, in the practice of a *soi-disant* Dr. Sappington (a suggestive name), of Missouri, whose pills nearly always cured malarial fever, and they were to be taken during the fever. After this doctor had made a fortune from the sale of his pills, he disclosed the formula, which was nothing but quinine with ext. liquorice.

But what has all I have said to do with yellow fever? This much, I may say, that I have always considered yellow fever as the gravest form of malarial fever, simple ague being the mildest. During my residence in Grand Rapids from 1838 to 1846, I saw many cases every summer of what we called bilious-remittent fever, with intense jaundice, and other symptoms approaching to yellow fever, and in the summer (August) of 1840 I had what might be called a typical case of yellow fever. The subject was a laborer on the canal, of middle age, German, who had never been where yellow fever prevailed. He had all the characteristic pathognomonic symptoms of yellow fever, including black vomit. He died after an illness of three or four days. Although I did not *call* this case yellow fever, I never doubted that it was, nor that the cause was there in that canal. He was, doubtless, saturated with the poison, whatever that may be, whether it be a microbe or not. It followed the "excavations," as Dr. Mello said it did in Rio de Janeiro. It might be said that I was mistaken in the diagnosis, as I had not then seen a case—but I did afterwards, in New Orleans in 1869, and I know that that man had all the characteristic symptoms of yellow fever, and it would not alter the case, any more than to call a case of small-pox eczema or some other name. It would probably take the same cause, essentially, to produce a given effect in the Maumee Valley that it does in New Orleans—though it is true that causes, apparently utterly unlike, will produce effects perfectly identical. For instance, I defy anybody to tell the difference between the pustules of varioloid and those produced by tartar emetic. And, by the way, I have always believed that pustules produced by tartar emetic *may* be as good a preventive of small-pox as the vaccine virus; but, for obvious reasons, I cannot prove it.

Whenever there is an epidemic of yellow fever in New Orleans, especially at the commencement, there is generally some dispute among the doctors, as to whether the fevers are yellow, or cases of grave bilious fever, a nice distinction, without a difference except in degree, I think. I believe, however, they call these milder cases *malarial*, to contra-distinguish them. If the microscopic yellow fever germ should be discovered, if it has not yet been, I believe the identity will be shown—till then, I shall think that Dr. Mello's theory is the most important contribution on this subject in recent times.

B. S. WOODWORTH, M.D.

Fort Wayne, Indiana, Dec. 12, 1885.

PASSAGE OF A LARGE PIECE OF GLASS THROUGH THE FOOT, AFTER FIVE MONTHS.

TO THE EDITOR OF THE JOURNAL:

Dear Sir:—The following case may prove somewhat interesting to the readers of THE JOURNAL.

William L. D., aged 17 years, while swimming on July 2, 1885, cut a deep gash in his right foot on some sharp object in the water. The wound was about the centre of the plantar surface of the foot, from side to side, and about an inch and a half from the base of the toes. There was considerable hæmorrhage, which was arrested by a companion. The wound was completely healed in two weeks, and no physician had seen the case. About this time a small swelling appeared on the top of the foot, causing great sensitiveness, on account of which the top of the shoe had to be cut away. This was the only inconvenience that the patient suffered, except that when he had been on his foot all day it became tired and somewhat painful. He could walk and run without difficulty or limping, and for five months the right foot was used as much as the other.

On November 12, the sensitive spot on the top of the foot was accidentally struck, causing great pain and rupture of the skin, giving exit to some blood and pus. I was called in on the evening of November 13. Near the surface of the small open wound I found the point of a hard foreign substance, which on probing was found to be of considerable size, and

deeply imbedded in the foot. Attempts at removal caused such pain that it was necessary to administer chloroform. The opening, which corresponded with the space between the second and third metatarsal bones, was enlarged, and with a pair of dressing forceps considerable force was required to dislodge the foreign body, which proved to be a triangular piece of glass, measuring three quarters of an inch on every side, and one-eighth of an inch in thickness. It is evident that this piece of glass had been in the foot for more than five months, and had passed completely through the member. The boy is now recovering rapidly.

There are two things that seem quite remarkable to me in this case: 1. That a foreign body of this character could pass entirely through the foot between the metatarsal bones without causing more interference to locomotion. 2. That such a substance could remain in an organ so much used as the foot, without exciting more inflammation and suppuration.

J. E. ALLABEN, M.D.

Rockford, Ill., Nov. 17, 1885.

BOOK REVIEWS.

POST-MORTEM EXAMINATIONS, WITH ESPECIAL REFERENCE TO MEDICO-LEGAL PRACTICE. By PROFESSOR RUDOLPH VIRCHOW. Translated by T. P. SMITH, M.D., M.R.C.S., England. From the fourth German Edition. 8vo, pp. 138. Philadelphia: P. Blakiston, Son & Co. 1885. Chicago: W. T. Keener.

This small book, as is to be expected from the name of its author, is worthy of careful study. The first portion describes somewhat the history of the methods of making post-mortem examinations as it has been adopted by Virchow. When he became Prætor at the Charité he found that the autopsies were made without method and by many persons who were incompetent. He defined a method, which since then he has improved, and instituted a thorough system in the making of all examinations. Too much cannot be said in this country upon this subject of pursuing a system in the making of autopsies. Few physicians have had instruction in the subject, and when they attempt an autopsy they make bungling work of it. If they knew how, many more private autopsies would be made, for it need not be an unpleasant task, and it need not take long. In hospitals the autopsies too often are made by students or internes without oversight or guidance. As a result, very much valuable material is lost and wasted. All physicians and students should study some such book as this, unless they have had the advantage of practical instruction.

The remainder of the book is taken up with comments upon and fuller explanations of the rules or "regulations for the guidance of medical jurists in conducting post-mortems," which are given in full at the end of the little volume. Several cases are fully described as they were made by Virchow. These are given both to illustrate the methods of operating and of describing what is seen at the autopsy. The description of these cases adds very much to the value of the book.

A TREATISE ON PRACTICAL CHEMISTRY AND QUALITATIVE INORGANIC ANALYSIS. By FRANK CLOWES, D. Sc., Lond. From the fourth English Edition. 8vo, pp. 376. Illustrated. Philadelphia: Lea Brothers & Co. 1885. Chicago: Jansen, McClurg & Co.

The present edition of this well-known and extensively used laboratory guide differs from the former issues in slight additions and rearrangements throughout the entire volume. The most important of these is the insertion of a section on the analysis of some of the more common organic substances. In the introductory chapter there has been a rearrangement, with amplification and the addition of new illustrations for the purpose of rendering the author's instruction more intelligible to the beginner, thus supplementing the work of the teacher or laboratory assistant.

A TEXT-BOOK OF MEDICAL CHEMISTRY. For Medical and Pharmaceutical Students and Practitioners. By ELIAS H. BARTLEY, M.D., Chief Chemist to the New York State Dairy Commission; Inspector New York State Board of Health, etc. Forty Illustrations. 8vo, pp. viii, 376. Philadelphia: P. Blakiston, Son & Co. 1885. Chicago: W. T. Keener.

It is with pleasure that we notice what is probably the best Chemistry for medical students—for its size—now in the market. Prof. Bartley has written the book because he had something to say; and he has said it well. We could wish, however, that under "Ptomaines," some of the methods for searching for these substances had been given in detail. Excellent features are a glossary of unusual chemical terms, an appendix giving the analyses of the various fluids of the body, a thoroughly good section on incompatibilities, and a table of solubilities.

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Time and place of Annual Meeting—On the first Tuesday in May, 1886, in St. Louis, Mo.

Chairman of the Committee of Arrangements—LeGrand Atwood, M.D., St. Louis, Mo.

Assistant Secretary—Wm. C. Glasgow, M.D., St. Louis, Mo.

INFORMATION OF IMPORTANCE TO ALL MEMBERS OF THE AMERICAN MEDICAL ASSOCIATION.

MEMBERSHIP.—Every one who attends an annual meeting of the Association as a delegate pays at that time five dollars, and thenceforward becomes a Permanent Member. He continues as such as long as he remains in good standing in the body from which he was originally sent as a delegate. As a Permanent Member, he must pay *Five Dollars Annually*, when notified by the Treasurer, whether he attends the meetings of the Association or not. Payment of annual dues entitles him to receive the weekly JOURNAL of the Association for one year.

MEMBERS BY APPLICATION are such as have not become Permanent Members in the manner above indicated, but apply to the Trea urer for membership, forwarding at the same time to him five dollars and the certificate of the President and Secretary of their State or local society, that they are in good standing in such society. They pay five dollars annually thereafter, when notified by the Treasurer. Members by application can join the Association at any time, and they receive regularly the weekly JOURNAL.

WHEN DUES ARE PAYABLE.—The annual dues from Permanent Members are payable to the Treasurer at the time of the annual meeting of the Association, or immediately thereafter. The payment entitles the member to receive the JOURNAL for one year from the following July. Payment for 1885, for example, entitles the member to the JOURNAL from July, 1885, to June, 1886, inclusive.

As some of the members have not yet forwarded to the Treasurer their dues for 1885, they are urgently requested to do so at an early day. Having entered upon another year of membership, they are morally and legally responsible to the Association for the payment of their annual dues, having already received for three months of the new year—1885—the JOURNAL of the Association.

SUBSCRIPTIONS TO THE JOURNAL, from those who are not members of the Association, should be forwarded to the office of publication, 65 Randolph Street, Chicago, and not to the Treasurer; but *all payments of annual dues must be forwarded to the Treasurer, Lock Box 1274, Philadelphia.*

DEATHS.—When a member of the Association, who is in regular receipt of the JOURNAL, dies, his family or other representatives are requested to inform the Treasurer at once of the fact.

PAYMENT OF DUES FOR PREVIOUS YEARS.—As a few members of the Association are still in arrears for payment of dues for 1883 and 1884, they are requested to forward at once to the Treasurer the amounts for which they are indebted to the Association.

TRANSACTIONS OF THE ASSOCIATION.—These annual volumes, thirty-three in number, to 1882 inclusive, may still be obtained, with few exceptions, from the Treasurer, at reduced prices. The Index to these volumes will be forwarded on receipt of *One Dollar*. An opportunity is thus afforded to complete sets of these valuable publications, or to obtain important papers and works which are daily becoming scarce.

RICHARD J. DUNGLISON, M.D., *Treasurer.*
Lock Box 1274, Philadelphia, Pa.

MISCELLANEOUS.

DR. W. A. EAST, of Hallettsville, Texas, died Dec. 10, 1885, of pleuro-pneumonia. Dr. East was born in Nashville, Tenn., Dec. 9, 1824. He read medicine with Dr. Thomas R. Jennings, of that city, and attended lectures in Philadelphia during 1845–46. He was for several years Professor of Theory and Practice of Medicine in the Galveston Medical College, and was a member of the American Medical Association, and the Texas State Medical Association. He was known throughout his State as one of its best and most conservative practitioners.

DR. ALBERT H. SMITH, one of the best known physicians of Philadelphia, and one most beloved by professional friends and his patients, died at his home in that city, on December 14, after a long period of painful illness. He was in his fifty-first year.

NEW YORK STATE MEDICAL ASSOCIATION, FIFTH DISTRICT BRANCH.—The third special meeting of the Fifth District Branch will be held in Yonkers, on Tuesday March 23, 1886. E. H. SQUIBB, M.D.,
Secretary.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM DECEMBER 18, 1885, TO DECEMBER 24, 1885.

Fryer, B. E., Major and Surgeon, sick leave of absence extended six months on surgeon's certificate of disability. (S. O. 292, A. G. O., Dec. 21, 1885.)

Vickery, R. S., Major and Surgeon, relieved from duty in Dept. of the Columbia, to repair to Washington, D. C., and report in person to Surgeon-General for duty in connection with Army and Navy Hospital, Hot Springs, Ark. (S. O. 293, A. G. O., Dec. 22, 1885.)

Reed, W., Capt. and Asst. Surgeon, leave extended one month. (S. O. 293, A. G. O., Dec. 22, 1885.)